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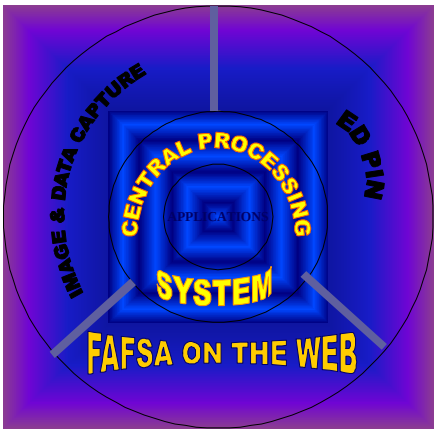


FSA Modernization Partner

CPS Upgrade Analysis

Deliverable 102.1.2

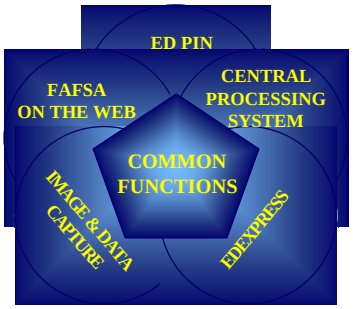
November 29, 2002

Table of Contents

1. Executive Summary

FSA's application processing systems support Title IV of the Higher Education Act of 1965 (HEA), as amended, to process each submitted Free Application for Federal Student Aid (FAFSA). The information provided by applicants is used to calculate and report the Expected Family Contribution (EFC). This EFC forms the basis for delivering student financial aid packages for a particular award year and is communicated to applicants and other delivery partners in the form of a Student Aid Report and an Institutional Student Information Record, respectively. FSA will facilitate over $49 billion in federal grants, loans, and work-study opportunities to an expected 8.2 million students during the 2002-2003 award year.

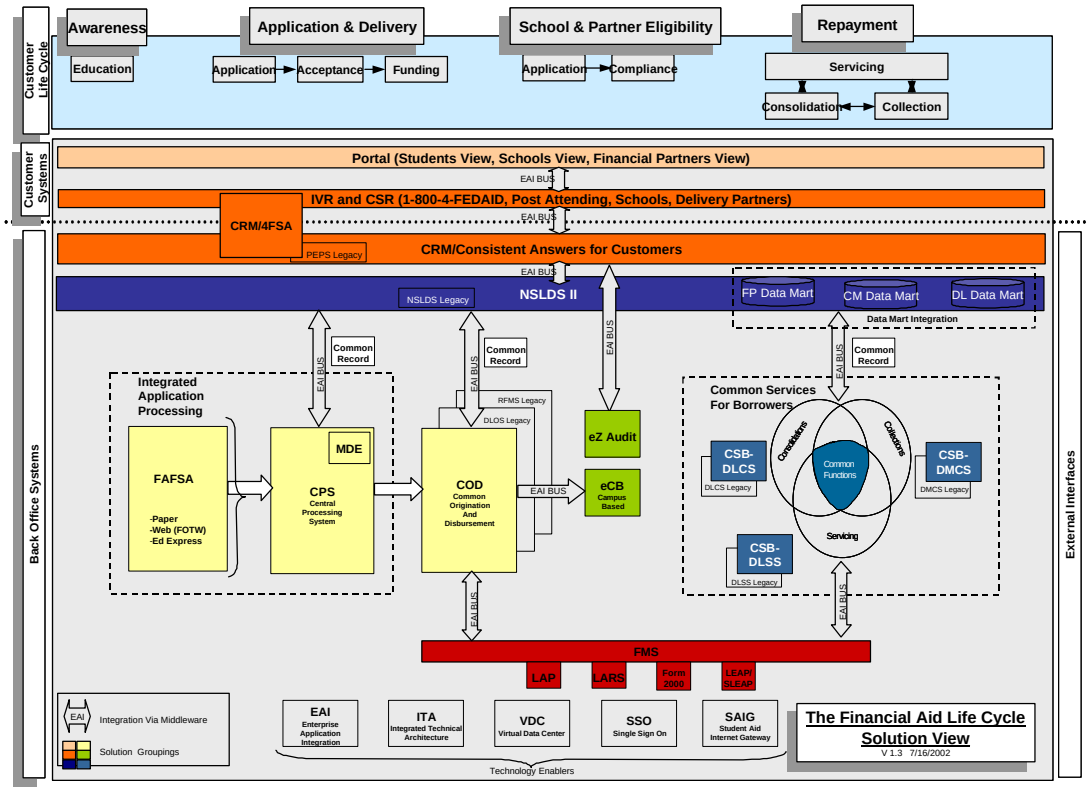
The Central Processing System (CPS) provides the necessary functions to process the FAFSA data and disseminate results to applicants, schools, state agencies and other student financial aid delivery partners. The CPS is also supplemented by other application processing systems which include the Image and Data Capture (IDC) facility for processing paper applications, FAFSA on the Web for applications completed using the Internet as well as student and financial aid administrator functions that are web based, EDExpress software used by school financial aid administrators and the ED PIN system for electronic identification and access. The CPS is used by all of these 4 systems for eligibility determination and output processing functionality. CPS also interfaces with other internal and external business processes to service the student aid life cycle needs of aid recipients and delivery partners. Specific upgrade opportunities are identified as a result of this analysis for an integrated application processing vision where CPS continues to provide the common functionality corresponding to FSA's modernization efforts.



The CPS, IDC, FAFSA on the Web, EDExpress and the ED PIN systems are successful in achieving FSA's goals related to application processing. These systems are **flexible** in their ability to address legislative and customer requirements, **scaleable** to varying processing volumes during the school year and have strong **continuous improvement** programs for updating processes and technology. FSA's **communication and collaboration** with delivery partners, formally through conferences and informally, are also key factors to successful results. These strengths are clearly represented in the fact that application processing time continues to decrease and the adoption of more efficient electronic means continues to increase. Over 12 million applications have been processed during the 2002-2003 school year (FY02) with an average processing time of 3.34 days while 74% of the applications were filed electronically.

While these application processing systems provide the necessary functionality for eligibility determination, FSA has separate processes for the aid origination, disbursement and servicing stages associated with the customer life cycle. The upgrade opportunities identified in this analysis include a focus on increasing the integration capabilities of application processing functions with other financial aid life cycle stages. The applications processing systems and their relationship to other stages within the financial aid life cycle are illustrated in the figure on the following page.

The application processing limitations noted in this analysis focus on increasing capabilities towards enterprise integration. Current limitations include the single-year transaction database structure, batch processes and external matches, multiple sources of school data and limited query and analysis capability. The upgrade opportunities are presented in light of addressing these limitations. While some of the actions can be implemented internally within FSA, others will require coordination with other federal agencies and delivery partners. Additionally, the upgrades are presented within the modernization perspective to leverage enterprise initiatives that are already underway.



The single year transaction database makes it difficult for leveraging applicant data available either within the application processing systems or elsewhere within the enterprise. The recommendation to structure the database based on 2 cycle years will enhance FSA's ability to **increase the accuracy of applicant data**. This result, will in turn, require the creation of a student table which will also benefit other stages of the life cycle that initiate transactions based on data received from the CPS.

CPS performs batch processing for matching requirements with internal and external data sources. Certain real-time interfaces can **decrease the amount of paper signature pages, decrease the amount of time required to issue an ED PIN** and **decrease application processing time**. While real-time interfaces will increase the processing time for applications, the overall process will only be as fast as the slowest match. This recommendation has 3 components to it – real-time interface with the ED PIN system and NSLDS, Social Security Administration for social security number match and with the Internal Revenue Service for income match. A real-

time interface with the ED PIN for applicants who have previously received an ED PIN but no longer have access to it will enhance FSA's ability to increase the number of electronic signatures thereby reducing the amount of paper signatures. Similarly, a real-time match with NSLDS for applicants in default will also speed application processing. A real-time interface with the Social Security Administration will increase FSA's ability to verify social security numbers quicker. While a real-time interface with the Internal Revenue Service can offer quicker processing, the business process to match income data is not currently part of the application processing function and will need to be developed.

School information is currently stored in multiple systems. The PEPS system maintains demographic information related to schools whereas CPS maintains the Federal School Code and other routing data for the delivery of Institutional Student Information Record (ISIR). FSA currently has plans to upgrade the PEPS system and make it the **owner for school data**. This PEPS upgrade will not only benefit the application processing systems from having to maintain school data, but will also enable efficiencies within other enterprise processes by providing a single data source.

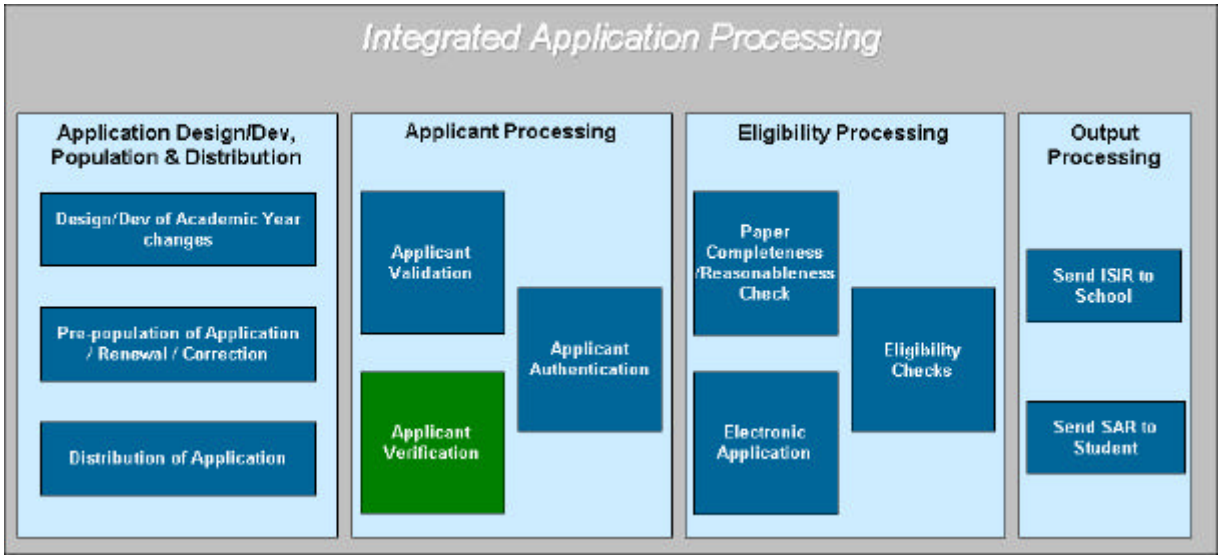
The application processing systems can significantly improve their analytic capability for quality analysis as well as predictive modeling through increased query features. The recommendation associated with the development of an **ISIR repository** will enable analytical and modeling capabilities for both FSA as well as its delivery partners. Additionally, the repository can become the integration source with other enterprise functions rather than imposing upon the online transaction processing functions for interfaces. Such a repository, over time, may also be used to provide other additional customer services. One such service may be to offer delivery partners a choice of receiving ISIRs via the SAIG or to receive notification of their availability for retrieval from the repository.

These and other upgrade opportunities that support an integrated application processing vision include the following:

1. Multi-Year Database – the recommendation, as noted earlier, is to change the format of the CPS database to consist of 2 cycle years. The design may include a student table to link the transactions within the database.
2. Telephony Options – the recommendation is to leverage the FSA IVR capability for appropriate FAFSA corrections and renewals, "Auto Zero" renewals, and duplicate requests or changes associated with the ED PIN. Original FAFSA applications are not candidates for using this technology.
3. PEPS as source for Schools data – the recommendation, as noted earlier, is to establish the PEPS system as the owner for all school data.
4. Real-time Matching – the recommendation, as noted earlier, is to develop real-time matching capability internally with NSLDS and continue dialogue with external agencies for a possible real-time match with the Social Security Administration as well as the Internal Revenue Service. Real-time matching capabilities are currently available from the Immigration and Naturalization Service and the Selective Service.
5. Web Enhancements – the recommendation is to offer the capability for entering more than 6 schools on FAFSA on the Web, a real-time interface with the ED PIN system for

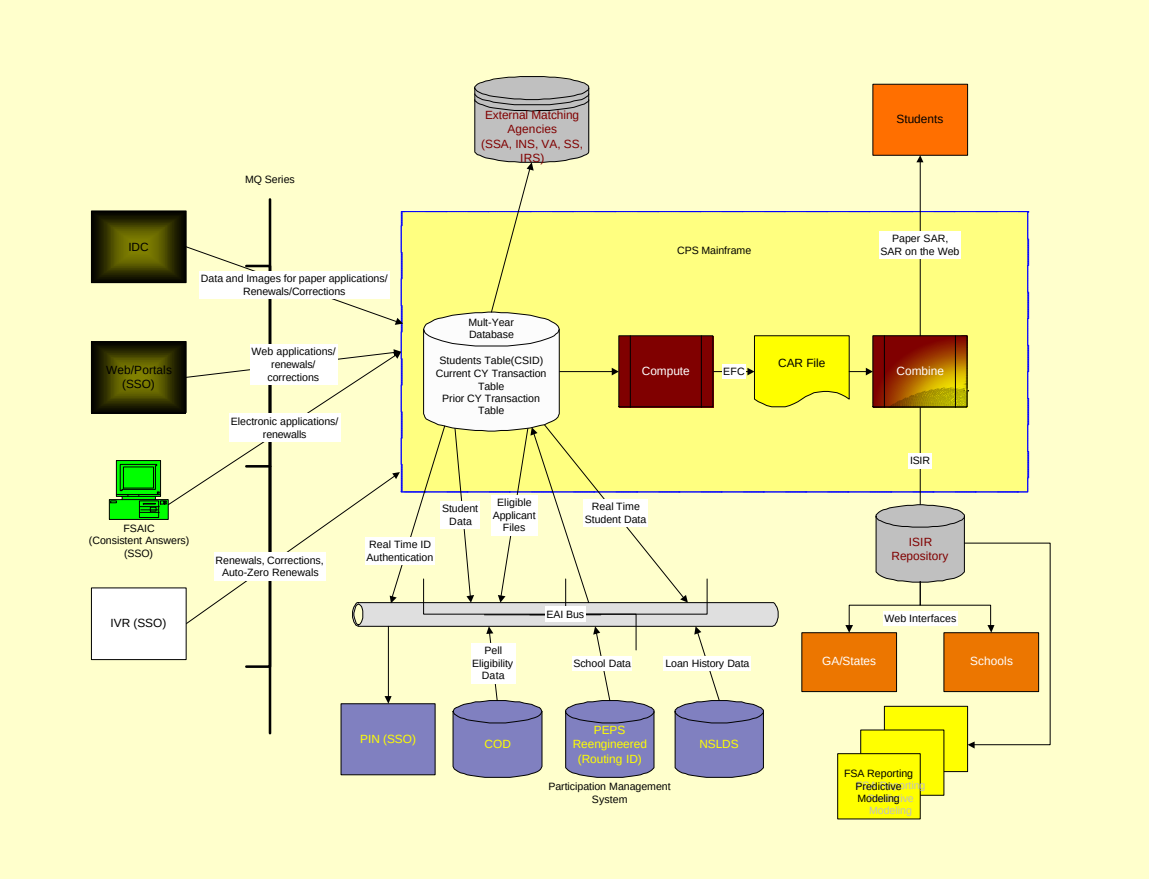
applicants who have previously received an ED PIN and no longer have access to it, enhancing the address to a universal format, capability for address verification for FAFSA on the Web, establishing standards and guidelines for communicating data to / from the application processing systems and other student loan systems, and implementing a structured methodology for web application performance monitoring.

6. ED PIN Re-Engineering – FSA currently has planning efforts underway to re-engineer the ED PIN system for enterprise authentication functions.
7. Imaging Storage / Retrieval – the recommendation is to maintain a minimum of 2 current cycle year images online and develop an offline management capability for storage media. It is also recommended that policy discussions be initiated to explore the possibility of destroying paper FAFSAs after they are scanned.
8. ISIR Repository – the recommendation, as noted earlier, is to develop an ISIR repository initially as a pilot capability in association with delivery partners.
9. Platform / Load Balancing – FSA is implementing platform enhancements to its web infrastructure using the Akamai edge service. For its mainframe platform, the recommendation is to continue with the current infrastructure while continuing to evaluate appropriate technological options in the future.
10. Re-Structure Transactional Database – restructuring the transactional database to only maintain the current transaction is not recommended as it will decrease the financial aid packaging flexibility of delivery partners.
11. Increase use of EAI Bus – FSA is already planning to increase the use of the middleware infrastructure for communications among its systems.
12. Security Planning – the recommendation is to upgrade the CPS security plan document specific to the 5 application processing systems due to their unique functionality and distributed operating locations.
13. Automated Scheduler – the recommendation is to implement an automated scheduler for CPS mainframe jobs.
14. Enterprise Initiatives – the application processing teams need to continue their participation associated with the enterprise initiatives underway.



The 7 enterprise initiatives in planning stages will further enable the integrated application processing vision. These initiatives include:

- Consistent Data – the development of the XML ISIR associated with application processing is in conformance with enterprise current plans.
- Portal Integration – the integrated application processing systems can provide valuable content to portal functionality.
- Routing ID – the requirements from integrated application processing systems will be an important element in the definition of the Routing ID for schools.
- Common Student Identifier – the requirements from integrated application processing systems need to be paramount in the definition of the common student identifier.
- Single Sign-On – the requirements from integrated application processing systems need to be included in this initiative.
- Common Record – the application processing systems are planning to leverage the common record and develop the appropriate ISIR blocks to the common record.
- EDExpress Re-Engineering – this initiative is in planning stages and will benefit from the web-enabled functionality available to financial aid administrators within the integrated application processing systems.



Integrated Application Processing – Architecture Vision

And finally, an opportunity exists for FSA to further increase submission of applications completely electronically without a paper signature. Promoting an ED PIN for electronically signing web applications should be aggressively pursued. The ED PIN Re-Engineering enterprise initiative should include achieving higher levels of electronic signatures associated with the web process preferably without regulatory assistance. Applicants currently have the option to complete the application electronically and either provide an electronic signature or print the signature page, sign it and mail it to FSA.

CPS Enhancement Implementation Timeline

As noted earlier, FSA currently does not have a business process that addresses data matches with the Internal Revenue Service. These processes will need to be developed if the

reauthorization bill is passed and includes appropriate legislation. The new process may offer FSA an opportunity to conduct these matches in real-time and increase the quality and accuracy of its EFC calculation.

FSA's application processing requirements demand an annual calculation of the EFC and include income and tax data as part of the input. Income and tax data is based on an annual cycle and unless that is modified a multi-year FAFSA will not help achieve FSA's mission.

The table on the previous page summarizes the upgrade opportunities leading to the architectural vision for integrated application processing and provides an initial sequence for their implementation.

The analysis related to the specific upgrade opportunities identified above is discussed in the Innovations section of this document (Section 4).

2. FSA Modernization Blueprint

2.1. Modernization Background

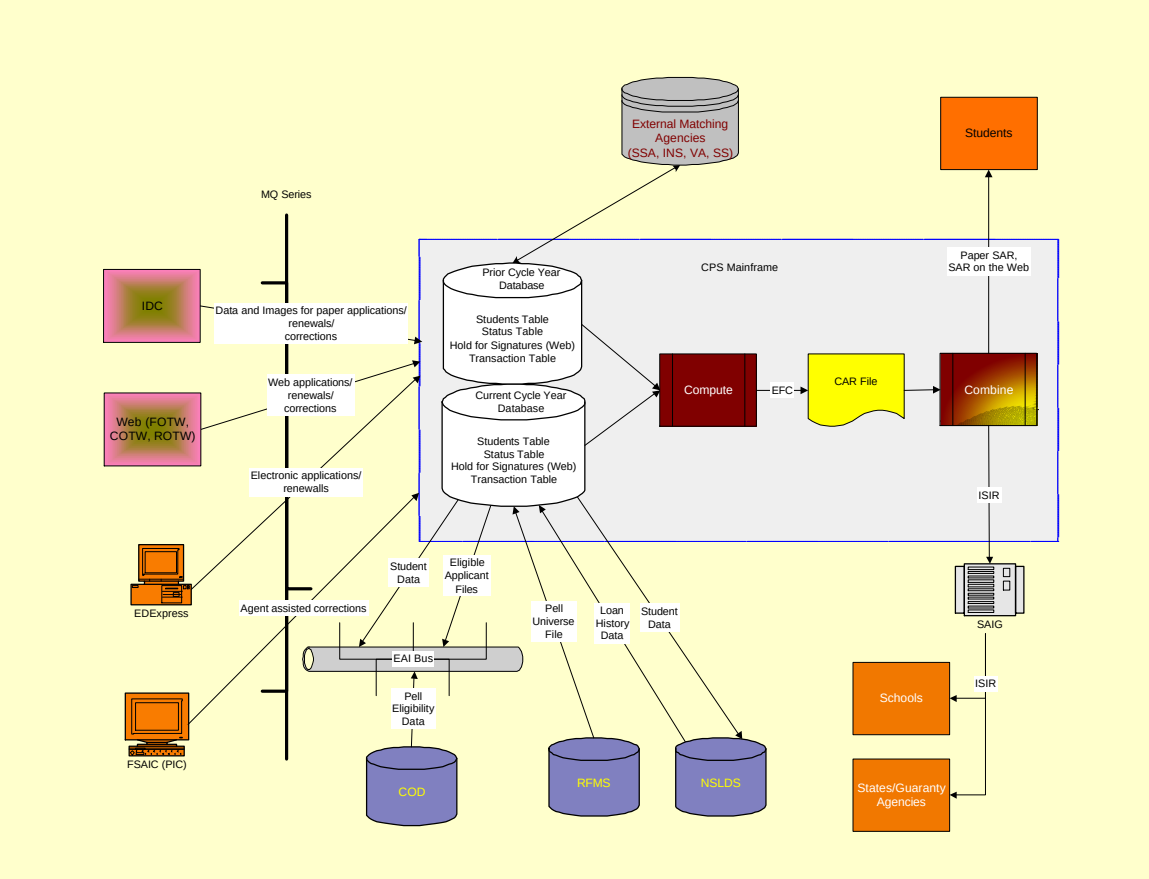
The U.S. Department of Education's Office of Federal Student Aid (FSA) embarked on an overall modernization program in 1999. The program is using a phased development approach to modernize FSA's core business functions - loan application processing, loan origination & disbursement, and loan servicing - through the reengineering, retirement, and replacement of existing legacy systems. The effort is aligned with FSA's core strategic objectives that have evolved from a commitment to reducing unit costs, increasing employee and customer satisfaction to a focused strategy that is centered around five main objectives. These five strategic objectives are to:

- Improve Service
- Improve Program Integrity
- Integrate and Modernize Systems
- Reduce Costs
- Increase Human Capital Performance

A core business architecture was formulated to apply key technical architecture solutions, including middleware technologies, to help integrate FSA's modernized systems with its legacy systems to enable data sharing and eliminate redundancies. The key business processes of the Modernization Partner effort include the following:

- Loan Origination
- Loan Servicing
- Financial Management
- Document Management
- Customer Relationship Management
- Loan Consolidation
- Aid Awareness
- Aid Application
- Debt Collection
- Campus Based Programs Processing
- Lender Payment Processing
- Guaranty Agency Payment Processing
- Data Storage and Retrieval
- Risk Modelling
- Performance Appraisals
- Human Resource Processes
- Organizational Transformation
- Customer & Partner Access to FSA systems
- IT Methodologies and Standards
- Architecture Management & Standards
- Security Policies and Architecture
-

Some key drivers of the FSA Modernization effort are to provide a seamless and integrated customer experience through the use of web based technologies, a paperless financial aid process, accurate and accessible data, and the restoration of integrity into FSA's systems and financial processes. The purpose of this analysis is to examine the modernization opportunities in the Aid Application business process area from a current perspective and establish the foundation for its vision.

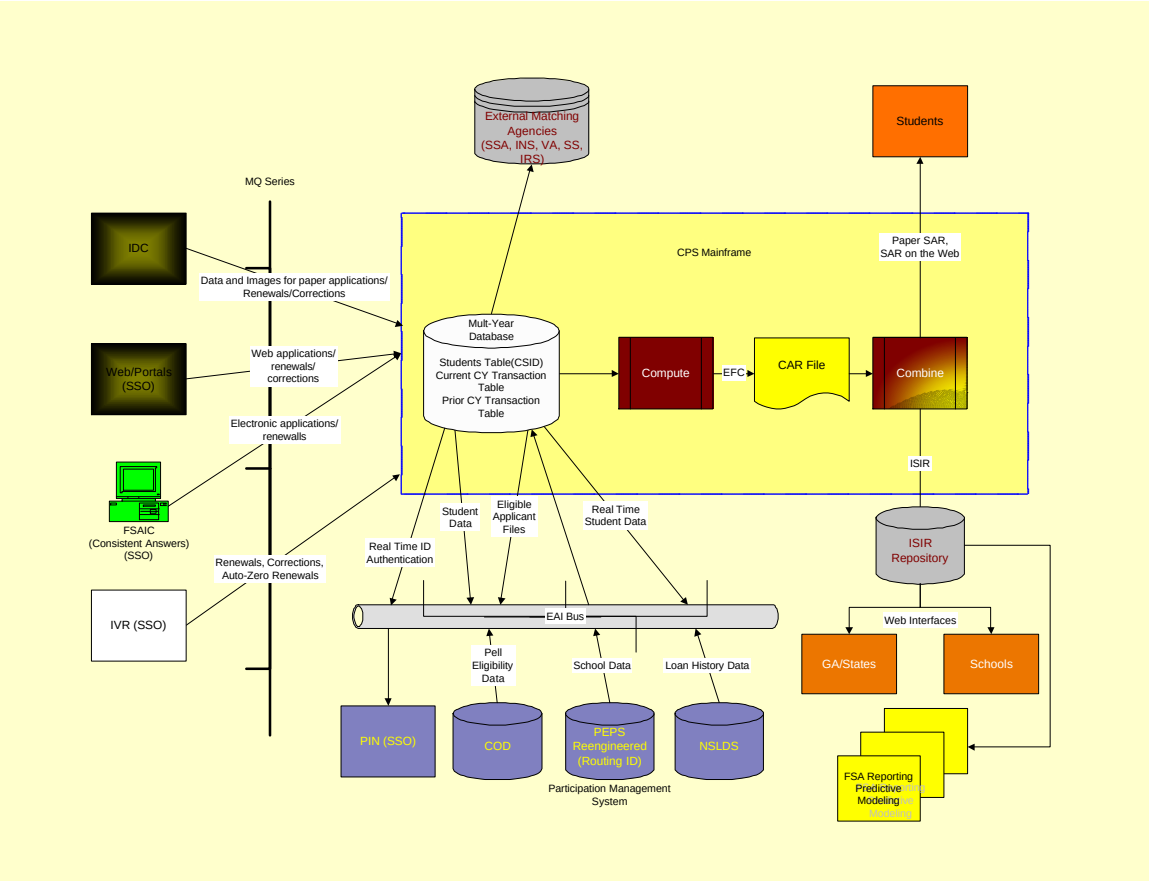


Current CPS Application Architecture

2.2. Integrated Application Processing (IAP) Vision

A large part of the modernization effort has focused on moving from the old hairball of disparate, stove-piped systems towards a future vision of clearly defined capabilities enabled by integrated and customer driven technologies. FSA's efforts over the next few years will focus on achieving its 2004 Target State Vision and move towards its next phase of Modernization. FSA has started to modernize its aid origination and disbursement process by retiring the old RFMS and DLOS systems and consolidating key and new functionality into the Common Origination and Disbursement (COD) system. FSA is moving away from a program-centric environment to a student-centric environment. With the framework established by COD, FSA is moving forward with the next phase of its plans to provide their customers with an integrated application processing experience (IAP).

This new process will be complemented by FSA's improved customer service delivery enabled by its commitment to providing consistent answers for our customers and partners. FSA's Aid Application core capability doesn't end with FAFSA on the Web. It allows certain users to apply using a version of the FAFSA that contains the core aid application questions and helps make the process simpler for those students and parents most in need of financial aid. FSA is looking at improving the entire process. FSA will move to retire the current EDExpress system and reengineer key functionality into FOTW. The ultimate goal is to have a consolidated and integrated aid application system centered on the FOTW site that enables students and parents to apply and manage their aid application via the web, anytime, and anyplace.



Integrated Application Processing – Architecture Vision

To achieve all of the integration efficiencies of an Integrated Application Processing state, FSA will also focus on the aid awareness process. The more knowledgeable students are about the aid application process prior to meeting the rush of state FAFSA deadlines, the more likely the students are to fully utilize the enhanced services offered to them and to be satisfied with the overall process.

2.3. Enterprise Initiatives

IAP is linked to numerous Modernization enterprise initiatives that impact many FSA systems. These initiatives are described in detail in the following sub-sections.

2.3.1. Consistent Data

As part of Modernization, an effort is under way to determine the data owners for key elements of FSA data (students, schools, etc.). This team will use the outcome from the Consistent Data project as a baseline for this recommendation. One key assumption with Consistent Data is the eventual implementation of a Common Customer Care platform, which will become the owner for all "Person" data (students, borrowers, parents).

Although CPS is the original source of data for students, it does not maintain the most current data for students once they become borrowers. NSLDS has the most recent data for borrowers, but does not have any data on applicants who do not receive financial aid. The goal of Common Customer Care is to become the owner for the Person data, regardless of where he/she is in the FSA lifecycle.

CPS will work with the Consistent Data team to ensure that any decisions made regarding the systems of record for data currently originating in the CPS, coincide with the future vision of CPS and its future upgrades.

2.3.2. Portal Integration

Currently, the Schools and Students portals provide gateways for students and schools to access Federal Student Financial Aid information, and to assist customers in making informed financial aid decisions. The School's Portal provides schools with resources, available training, access to student data, participation in programs, and funding. This includes links to CPS, COD, NSLDS, Direct Loan, and RFMS.

The main goal of the Student's Portal initiative is to provide a unified portal for students and parents to access FSA Financial Aid information. The portal also provides links to existing FSA websites, including FAFSA and NSLDS. The Portal is intended to be a front page for students to access FSA information, but it will not offer functionality over what is provided in existing FSA systems. For instance, the process of applying for federal aid will remain within CPS and the Portal will simply provide a gateway to access the application

There is also an initiative for a future release to integrate the Students portal with the ED PIN. When the students authenticate themselves using the ED PIN on the Students Portal, they will be able to view loan information, including balance, interest rate, etc. This will create a personalized student view of their data. The Single Sign On initiative will address ED PIN usage on the Portal. It will allow students to be authenticated when linking to other websites from the portal, instead of having to log in at every website.

FSA provides many sources of information for students and parents to become aware of financial aid options. Some initiatives occurring include FAFSA on the Web/ED PIN Tool Kit distribution, FAFSA on the Web/ED PIN book covers, and EAC and NAFSA Conference sessions. The Students Portal is an additional avenue for aid awareness for FSA. The Portal provides information for students at any stage in their education. The Student's Portal will continue to be a driving force in promoting aid awareness with the additional capabilities that will be implemented in future releases.

Some recommendations for future releases of the Students Portals include:

- Display Application Status (after authenticating with the ED PIN)
- Link to SAR on the Web to view final EFC if application was processed
- Direct links to Corrections, Renewals
- Information on consolidating loans and payment options (if student is in this stage of the process)
- Link to different states on the Student's Portal to see requirements and deadlines to apply, maybe display a link to a certain state depending on the student's address if they personalized their website
- Show status of when school received financial aid for the student on Student's Portal
- If viewing applying for aid on Students Portal, include list of documents needed to apply for aid (specific documents such as asset information, tax forms, SSN)
- Possibly have direct link to the application from the Students Portal, instead of going to FAFSA on the Web, maybe not an option for new students
- Pre-populate the FAFSA Application with student data. The application has the ability to be pre-populated today through other sources, such as schools.
- Explore ED PIN Option where student will sign onto the Students Portal with the ED PIN, then if they fill out the FAFSA, no longer allow Paper Signature request since already authenticated using ED PIN unless another Single Sign On initiative is implemented (Please reference 4.3.3, Require ED PIN for Web Applications).

Dependencies:

- Single Sign-On initiative – This will allow a single sign-on for students, which will prevent them from having to re-authenticate themselves when linking to other websites, such as FOTW. This will address the ED PIN usage on the Portal.

The vision of the School's Portal is not as clearly defined as the Students Portal, but some suggestions have been identified for consideration for future releases such as:

- A link to all ISIRs for a given student
- The Schools Portal could potentially replace the SAIG network today

2.3.3. Routing ID

Currently, schools are required to recall and use different identifiers in order to interact with different FSA systems. They also need to know which system they are interacting with, in order to identify themselves appropriately. The use of these various identifiers also complicates the ability for FSA to gather comprehensive data about a school or target group.

The main goal of the Routing ID for schools is to provide a consistent manner to identify schools and school branches across the enterprise, regardless of the system. A primary goal is to provide a common view of the school enterprise data within FSA.

The Routing ID initiative will allow only one identifier per school within FSA. The school will not be required to know the "system" with which they are interacting, as their common identifier will allow them to be known to all of the FSA systems. The Routing ID will also have

the ability to be translated into any legacy identifier. This will protect the legacy systems, including CPS, from having to make any changes to support a new identifier.

The Common Origination and Disbursement (COD) system has already begun to take steps towards the Routing ID vision. The system has generated a Common School Identifier for every OPE-ID currently in PEPS. Institutions participating in the modernized COD system have begun to use the Common School Identifier instead of legacy identifiers.

2.3.4. Common Student ID

Access to data today by FSA's customers is inconsistent and requires system specific identification and authentication tokens (e.g. Social Security Number, Date of Birth, first two characters of Last Name, ED PIN, Student DRN). Different identifiers are required to access different systems and is at times inconsistent. The goals of the Common Student Identifier initiative are to a) greatly improve the integration of customer information across FSA and thereby improve data consistency; and b) provide customers a single, consistent method to access data to which the customer has a right while protecting the customer's data from unauthorized, specifically non-authenticated, access.

FSA has identified a group within Modernization Partner to lead this initiative. This group is soliciting feedback from all legacy systems with regard to how each system, and their applications, identify students. They will generate business scenarios for all phases of the student life cycle, and identify future identification to satisfy all requirements and business scenarios.

CPS will continue to stay involved with this effort and will provide assistance with validating business scenarios and providing Mod Partner with documentation on past work done in the area of Student Identifier.

2.3.5. Single Sign-On

Currently, FSA does not have single sign-on services for its customers. A single sign-on service will enable FSA web customers with appropriate authority to identify and authenticate (login) once to an FSA system without having to login again to other FSA systems, within a given browser session. As of June 2002[1], FSA has 39 systems requiring user login that support its students, schools and financial partners. Login credentials include 26 user ID's and 29 passwords. Students have access to 10 FSA systems and can have up to 8 different credentials. Schools have access to 22 FSA systems and can have up to 18 different credentials. Financial partners have access to 16 systems with as many different credentials. Within the student community serviced electronically by FSA, users generally possess a Department of Education-issued ED PIN. The application processing systems currently have their own enrollment, identification, authentication and related customer support functionality. In general, the

[1] The statistics have been analyzed from the document titled Deliverable 82.1.3, FSA Logon Access Survey, prepared by the FSA Modernization Partner under task order 82, Single Sign-On Requirements Analysis.

student community can utilize the ED-issued PIN for identification and authentication (i.e., login).

FSA's vision is to provide single sign-on as a service to its customers. FSA is currently evaluating the business and technical feasibility for offering single sign-on services. Users will require a single identifier and associated customer service functions that will need to include enrollment management. The application processing systems will need to be upgraded based on the standard identified for a single sign-on solution that is applicable to enterprise-wide functions. Current FSA application processing systems may have business logic that depends upon the identifiers utilized. This business logic may need to be redesigned and developed to support a new identifier(s). This need may require a prolonged test cycle in addition to the development and training phases.

The single sign-on will provide a single login credential for customers and possibly a single authentication service for FSA applications. It will also standardize enrollment and customer service functions supporting access to FSA systems.

Dependencies

- Definition and adoption of single identifier(s) for FSA customers. These identifier(s) will need to encompass the student, school and financial partner communities in addition to the department and other users of FSA applications.
- Evaluation and standardization of single sign-on technical solution that is adaptable to the 5 systems that support the FSA application processing functions.

2.3.6. Common Record

As part of its modernization initiatives, FSA developed a common record associated with customers. The initial implementation of the common record was performed with the Common Origination and Disbursement (COD) system. In order to enhance the common record for additional benefits to schools and FSA customers, the ISIR data elements will be converted to XML and included as part of the Common Record. CPS will begin to transmit the ISIR, in XML format, to institutions and state agencies in the 2004/2005 school year.

Currently FSA records are transmitted between FSA, its Operating Partners, and Delivery Partners (Schools, Financial Partners) in flat file layouts composed of different standards. Migration of these data transmission into the Common Record utilizing XML continues the logical extension of the vision and the work started on the COD initiative.

The financial aid process can be viewed in three steps. The ISIR process is the front-end where the student submits the FAFSA to CPS and CPS transmits the results (ISIR) of the FAFSA along with the Expected Family Contribution (EFC) to the appropriate institutions and state agencies. The COD process is the middle step where Operating Partners send student awards to the Department and receive funding accordingly. Finally, the CSB/NSLDS process is the back-end step where information about aid is provided, and historical records are maintained.

Expanding the Common Record currently utilized in the COD system to include ISIR data furthers the concept of standard reusable blocks of similar data that are shared across business

processes; will permit real-time transfer of information between Delivery Partners, Operating Partners, and FSA; and, will support improved service and program integrity. It will also reduce the number of technologies required by Delivery Partners to participate in FSA programs, thereby reducing the administrative burden.

Future users of the new format will be FSA, its Operating Partners, and every post-secondary school and Financial Partner administering Federal Financial Aid Programs. The data sharing through XML will integrate with other Modernization initiatives, and allow all partners in the financial aid delivery process to standardize communication methods.

3.2.7 ED PIN Re-Engineering

The ED PIN site maintains the identification components for over 23 million users and is growing at a pace of approximately 10 million annually with new applicants for student aid. The ED PIN is used to validate web FAFSA applicants, electronically sign the FAFSA, as well as access aid application status. The ED PIN is used for web FAFSA applicants for original, renewal as well as correction applications. The ED PIN is also used by students to access 6 FSA systems (CPS, NSLDS, eCB, DLCS, DLSS, FOTW) and by financial aid administrators to access FAA Access Online. The planned consistent answers for customers modernization initiative also intends to utilize the ED PIN to authenticate users. The ED PIN also forms the basis of the Student Authentication Network (STAN), an electronic signature service provided by FSA to other Title IV partners.

FSA has published standards for FSA applications that need to utilize the ED PIN. FSA has also published the e-Sign Standards for applications using the ED PIN for electronic signatures. Additionally, FSA has published technical standards (APIs) for developing interfaces to the ED PIN site for authentication functions. The ED PIN site allows users to obtain an ED PIN. The ED PIN is issued to individuals and requires their name, social security number, date of birth, address, and e-mail. The information provided by applicants is verified with the Social Security Administration through a SSN match. If matched, the Department issues the applicant a 4-digit ED PIN either via a mailer through the postal service or via e-mail.

The objective of the ED PIN Re-engineering initiative is to ensure that the ED PIN is scaleable as an enterprise service. As part of this initiative, FSA will validate the vision for use of the ED PIN within Department and partner application systems. This validation will include key inputs and requirements associated with modernized systems as well as those in the planning stage.

The ED PIN site provides identification information for student users of FSA applications. The primary application use of the ED PIN site is the FAFSA on the Web application where users are identified and authenticated with their ED issued PIN. Other FSA modernized applications also utilize the ED PIN infrastructure to identify and authenticate users to provide online customer service and support. The ED PIN infrastructure is also the foundation for the STudent Authentication Network (STAN) that allows FSA partners to use electronic signature capabilities associated with Title IV programs.

The ED PIN infrastructure currently houses identification and authentication data for over 23 million users and is growing at a rate of approximately 10 million users per year. FSA's ability to authenticate users for services it provides to customers through various applications and systems is critically dependent upon the availability and throughput of the ED PIN infrastructure. The ED PIN infrastructure is being upgraded to meet FSA ITA standards. This initiative is focused on developing a vision for the ED PIN, upgrading the site as necessary, and developing the necessary process and standards documentation for its use.

The key existing systems that utilize the ED PIN services include:

- CPS
- NSLDS
- ECB
- DLCS
- DLSS
- FOTW

As appropriate, other systems or FSA initiatives may be examined as part of this integration process as well.

3. Central Processing System (CPS)

The Title IV Central Processing System (CPS) is at the center of a national delivery system designed to provide Title IV federal student financial aid to millions of postsecondary education students. The CPS serves as the central database for Title IV applicant data for the Department of Education (ED) and performs the processing services necessary to determine an applicant's eligibility for federal student financial aid. The CPS must interact with various federal agencies and contractors, numerous private agencies serving the financial aid community, state agencies, thousands of postsecondary educational institutions, and millions of students and their parents.

The CPS is a mainframe system, which processes student financial aid information and produces Student Aid Reports (SARs) and electronic Institutional Student Information Records (ISIRs). There are several additional software systems, which are delivered on PC, Mainframe, and Web platforms.

3.1 High Level Functions

The primary role of the CPS is processing Title IV applicant data and facilitating communication between students and the Department of Education. To be considered for a federal Title IV award, applicants may choose from paper, Web, or Electronic Data Exchange (EDE) methods. Corrections to application data are also made through these media.

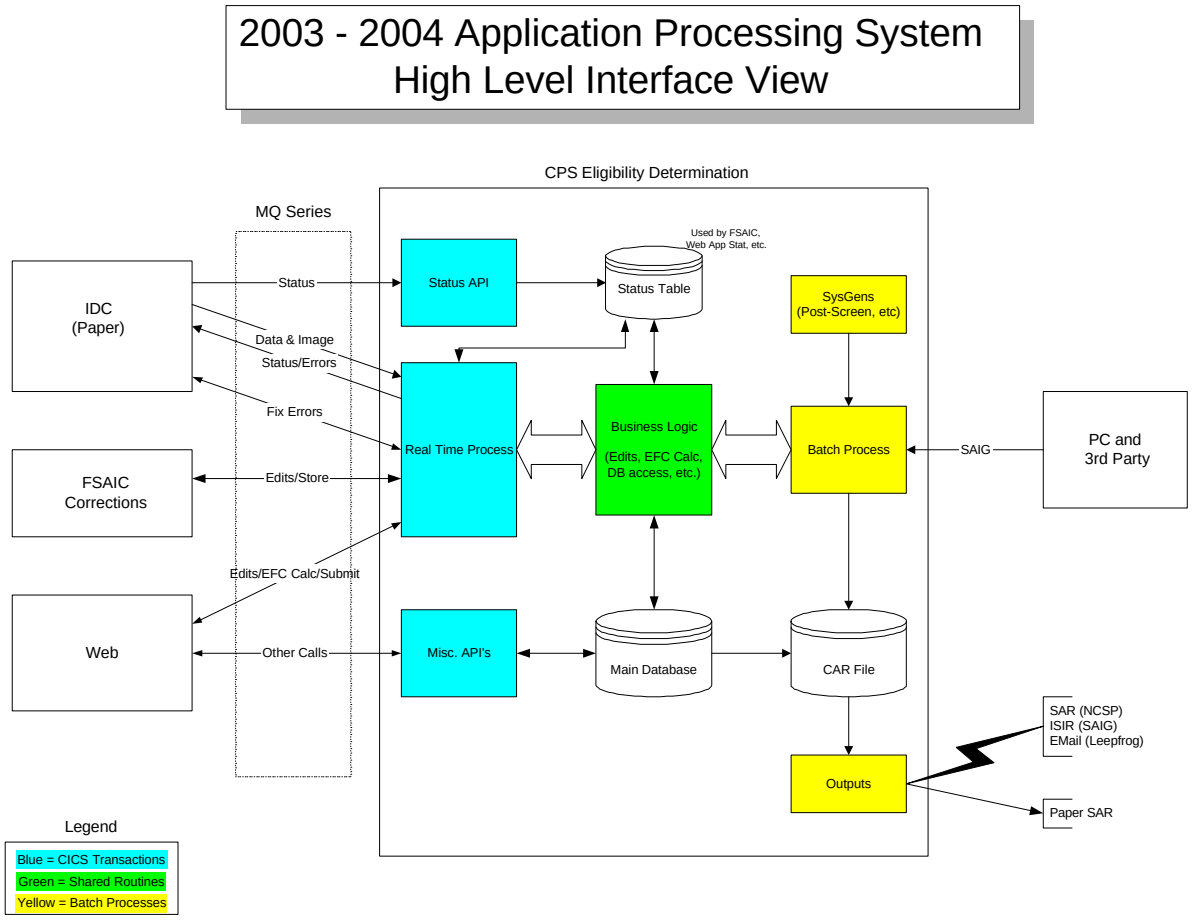
3.1.1 Paper Input to the CPS

Students may submit the paper version of the Free Applications for Federal Student Aid (FAFSA) to an ED-approved Multiple Data Entry (MDE) processor, also referred to as the Imaging and Data Capture (IDC) processor. The source documents are scanned and the applicant data is analyzed and key entered by the processor.

Qualifying applicants who filed a FAFSA the previous year may complete a paper Renewal Application. These applications contain information from the previous award year that the student may change or confirm, thus shortening the process. Paper Renewal Applications are mailed directly to the student. If the student applies using this method, he or she must return the completed form to IDC for scanning and data entry.

Students may also send paper corrections or completed signature pages to IDC for processing.

Each IDC formatted record (including both image and data) is transmitted to the CPS in an MQ Series data packet container. The CPS uniquely identifies each IDC record using a 12-byte Packet ID. Records are sent one at a time. There is a one-for-one match between data and image at the CPS. If the image stores successfully, the data is passed through Data Entry (DE) Edit. If the data passes this series of edits, it will be written to the CPS Transactions in Process Table. If the image does not store properly or the data does not pass DE Edit, an MQ message will be sent back to IDC for the record to be re-processed.



3.1.2 Web Input to the CPS

The FAFSA on the Web (FOTW) software provides financial aid offices, libraries, and students with easy online access to the FAFSA. It is designed to work with most operating systems, in conjunction with commercially available browser software. FOTW is available on the World Wide Web at fafsa.ed.gov. The student's record will be processed through data entry and compute edits using shared components of the CPS. Once the record has successfully passed the edit checks, it will be submitted for final processing and these records will be written to a mainframe database table.

Renewal FAFSA on the Web (ROTW) provides Web access to the 2003-2004 Renewal Application. ROTW processing is the same as that for FAFSA on the Web except that students are subject to several restrictions, chief among them that they must have an electronic PIN to use this application method. The PIN may also be used to electronically sign the Renewal Application and any later corrections made through the Web.

Students and parents may request PINs at pin.ed.gov. The PIN application records are transmitted to the Social Security Administration (SSA) for a match of the Social Security Number, first two letters of the last name, and birth date with the SSA database. If the records match, they will be added to an Authentication File, which will be used to authorize later uses of the PIN. If the successfully matched PIN applicant has an e-mail address that meets all

industry standards, the CPS will send an e-mail notification of a secure Web site where the PIN may be accessed. In the absence of a valid e-mail address, the PIN will be shipped in a secure PIN mailer via first class U.S. mail. PIN applicants with no SSA match will be notified of the rejection either by e-mail or PIN reject letter.

Electronic Data Exchange (EDE) schools are allowed to request PINs for their students during a bulk PIN request period from October 7, 2002, through November 1, 2002.

In addition to the above sources for PINs, the CPS also generates automatic PINs. Each initial application with a successful SSA match is checked against the Authentication File. If the person is not in the file, a PIN will automatically be generated and the same e-mail or paper options will be used to notify the student.

Provided they have an authenticated PIN, students may make corrections to their FAFSA data through the Corrections on the Web (COTW) software, also at fafsa.ed.gov.

Students with e-mail addresses that meet industry standards and who have completed FOTW applications, ROTW applications, or Corrections on the Web without the requisite signature(s) will be sent an automated e-mail message regarding the necessary signatures.

Authorized Financial Aid Advisors (FAAs) may use FAA Access on the Web to submit FAFSAs, Renewal Applications, and corrections to application data at fafsa.ed.gov/FAA/faa.htm.

Approximately 50% of FAFSA applications (about 6 million) are completed via the Web.

3.1.3 EDE Input to the CPS

Schools participating in EDE can be eligible for Electronic Initial Application processing, which allows school staff to enter student application data directly. The data is electronically transmitted through the Student Aid Internet Gateway (SAIG) to the CPS. Though EDE schools may customize their systems, many use EDExpress, an integrated ED-provided software package that allows participants to enter, report, and manage all Title IV student financial aid applications. FAAs may also make corrections to FAFSA data using this method.

3.1.4 Federal Student Aid Information Center (FSAIC) Input to the CPS

Students, parents, and FAAs who have the proper applicant identifiers (Social Security Number and Name ID) may call FSAIC at 1-800-4FEDAID to correct IDC data entry errors on FAFSA data. Operators retrieve an image of the FAFSA source document and visually confirm the error before making the change. Selected fields on a SAR may also be corrected provided the caller has the proper identifiers. Corrections made via these direct contacts are sent to the CPS database to be processed.

3.1.5 CPS Processing

Regardless of the method used to apply or make corrections, when the data is received and processed at the CPS the system performs the following functions:

- Determines validity of the data
- Evaluates applicant eligibility
- Determines whether the record should be selected for verification
- Determines whether additional information is required
- Generates comments on the processing results
- Directly notifies the student's school and/or state financial aid agency, as instructed, of the processing results
- Prepares reports that reflect historic and population data

All data received by the CPS must pass a series of edits that check for incomplete or inconsistent data. Once the data has passed the edits, the CPS transmits applicant data to the following agencies:

- Selective Service (SS)
- Immigration and Naturalization Service (INS)
- Social Security Administration (SSA)
- Department of Veterans' Affairs (VA)
- National Student Loan Data Base System (NSLDS)

These agencies perform matches regarding the applicants' status before their information is processed through compute. Match results are then returned to the CPS and the data is evaluated and applied to the records on the CPS database.

The processing system calculates an Expected Family Contribution (EFC) for those applications not rejected by the compute edits. The EFC is a measure of the student's financial need and is calculated by using a congressionally developed formula. All processed data for each applicant is now contained in the Computed Applicant Record, which is used to prepare the following reports notifying the student or designated school(s) of the results. The reports are listed in priority order.

The overall processing time for student data ranges from 10 to 14 days, which applicants may cut to three days by using electronic signature(s).

CPS Output after Processing

Option One: If the student has an e-mail address that meets industry standards and other CPS specifications (not a duplicate, etc.), he or she will be sent an E-mail Notification of SAR Data, which contains a Web address where the student may enter stable data (SSN, Name ID, and Date of Birth) to view or print SAR data. The SAR has been designed to notify the student of application and eligibility status and to provide a means for correcting or verifying applicant

data. It includes reported information from the FAFSA, NSLDS financial history data (if present), CPS processing results, and pertinent comments and instructions.

Option Two: Students who don't meet the industry standard for e-mail, but who submitted application or correction data electronically at their schools will receive a SAR Acknowledgment, a one-page paper form. Web users who don't meet the e-mail criteria, have not been rejected for missing signatures, and have a successful SSN match will also receive the form. The front of the form contains comments providing necessary information and instructions to the student. The reverse side shows the data the applicant reported and a summary of processing results.

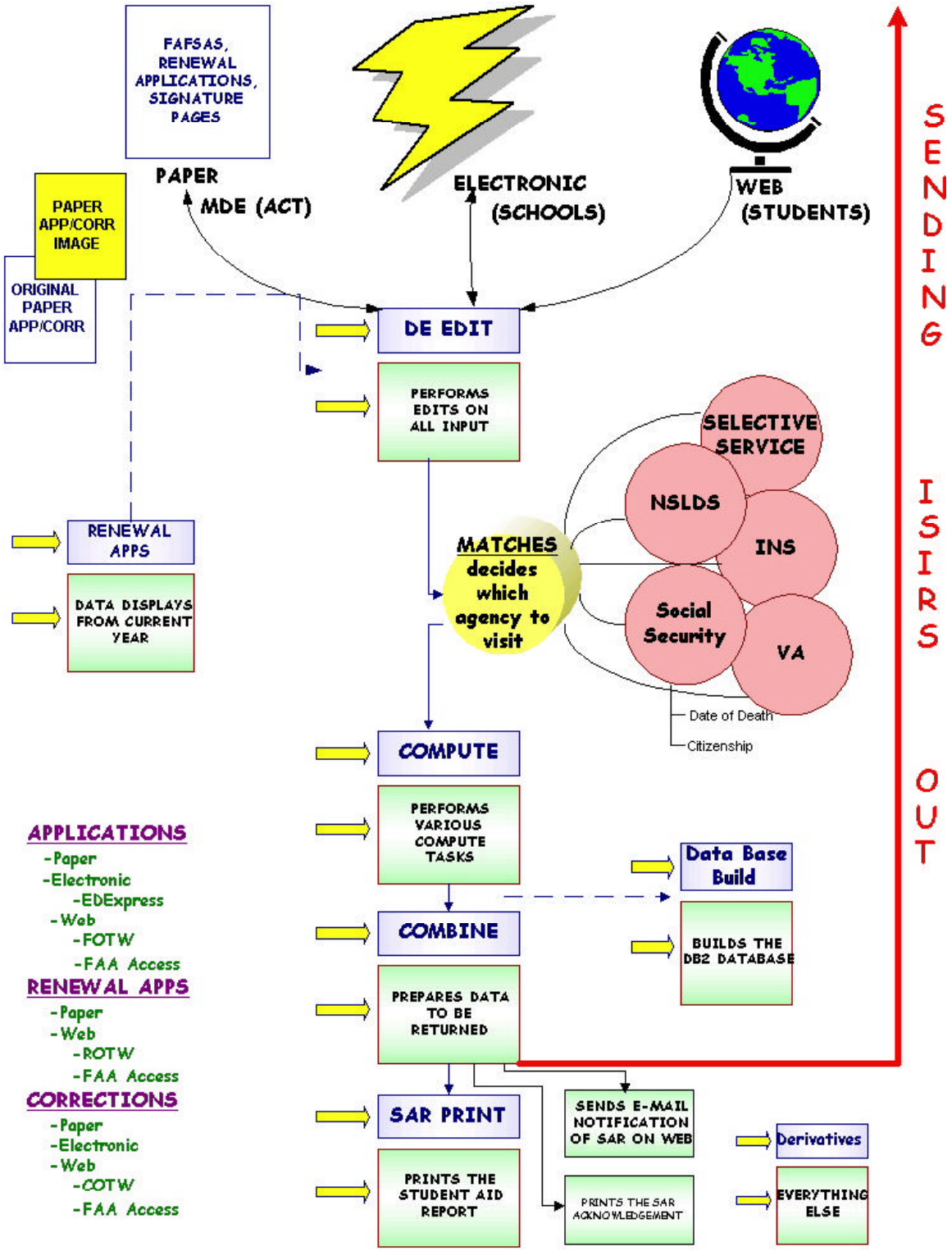
Option Three: Students not meeting the e-mail criteria who have filed through IDC or have made corrections through the FSAIC will receive a paper SAR. Web filers who must provide signatures or applicants with unsuccessful SSN matches will also receive paper SARs.

EDE schools listed by the student on the application or correction will receive an ISIR (Institutional Student Information Record), a fixed-length electronic record containing the same data as that in the SAR (described above).

These documents also relay information to students whose applications have been rejected for incomplete or inconsistent data. In these cases additional information or corrections must be returned to the IDC or the student must make electronic corrections before the CPS can calculate an accurate EFC. Applicants who have applied online and who have a PIN may make these changes through FAFSA Corrections on the Web, available on the Web at fafsa.ed.gov. Financial Aid Advisors may also make corrections through FAA Access on the Web at fafsa.ed.gov/FAA/faa.htm.

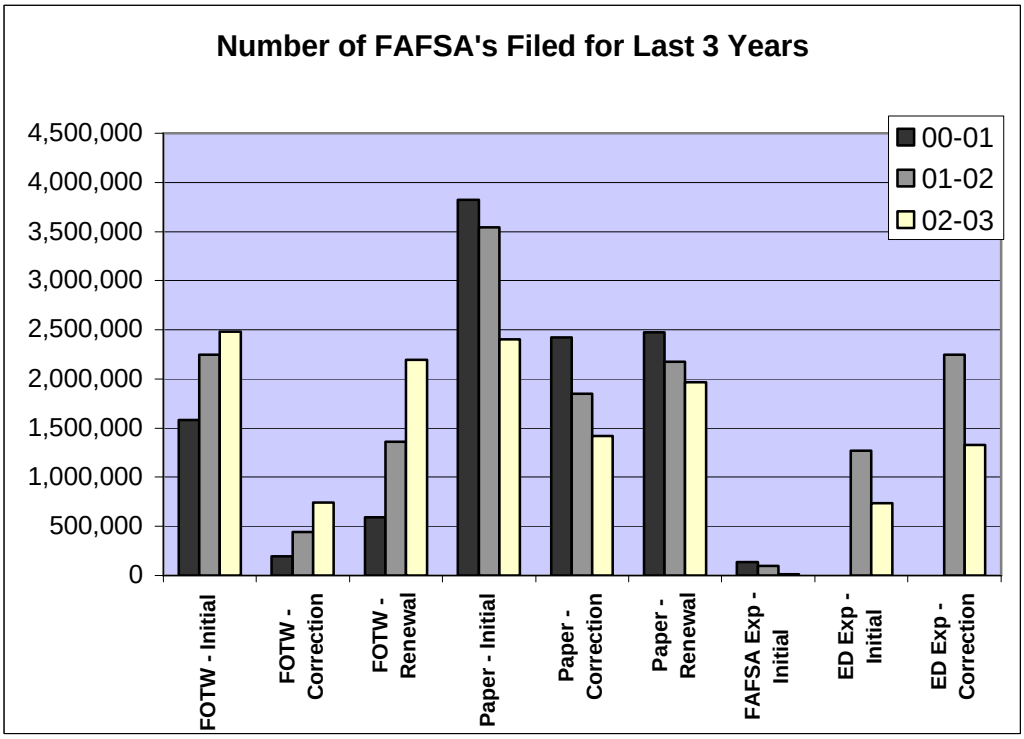
See Figure 1, CPS Processing Flow, for an illustration of the flow of data to and from the CPS.

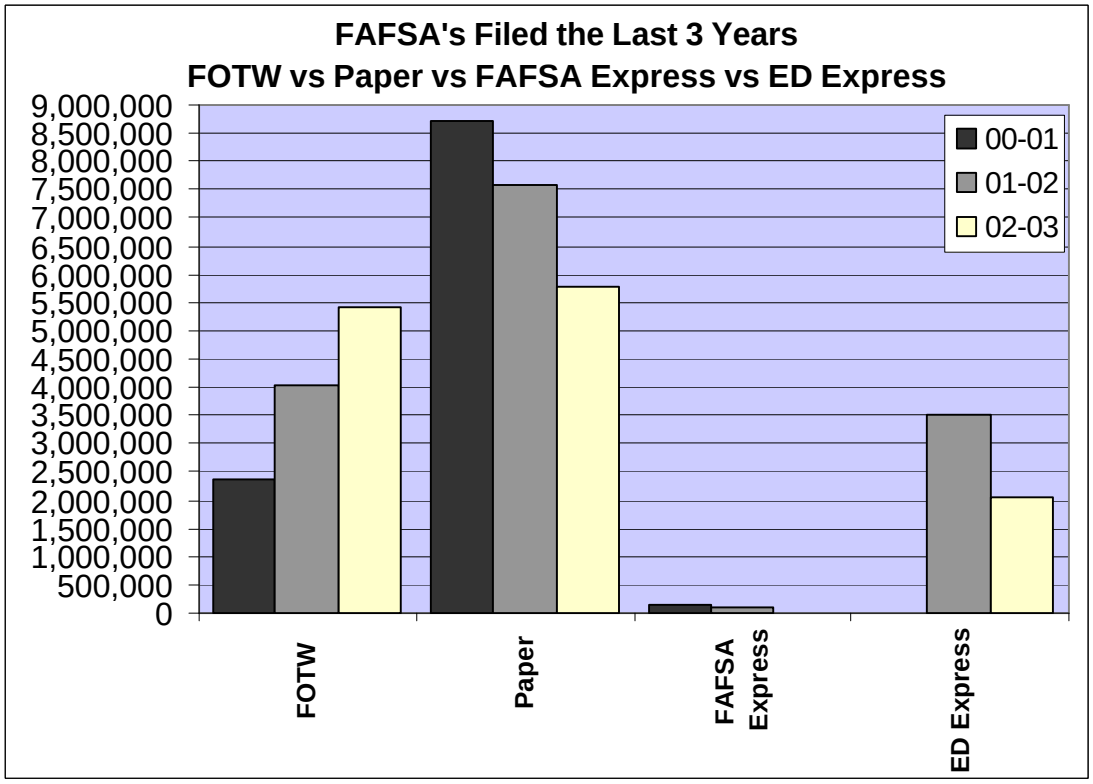
Figure 1
CPS Processing Flow

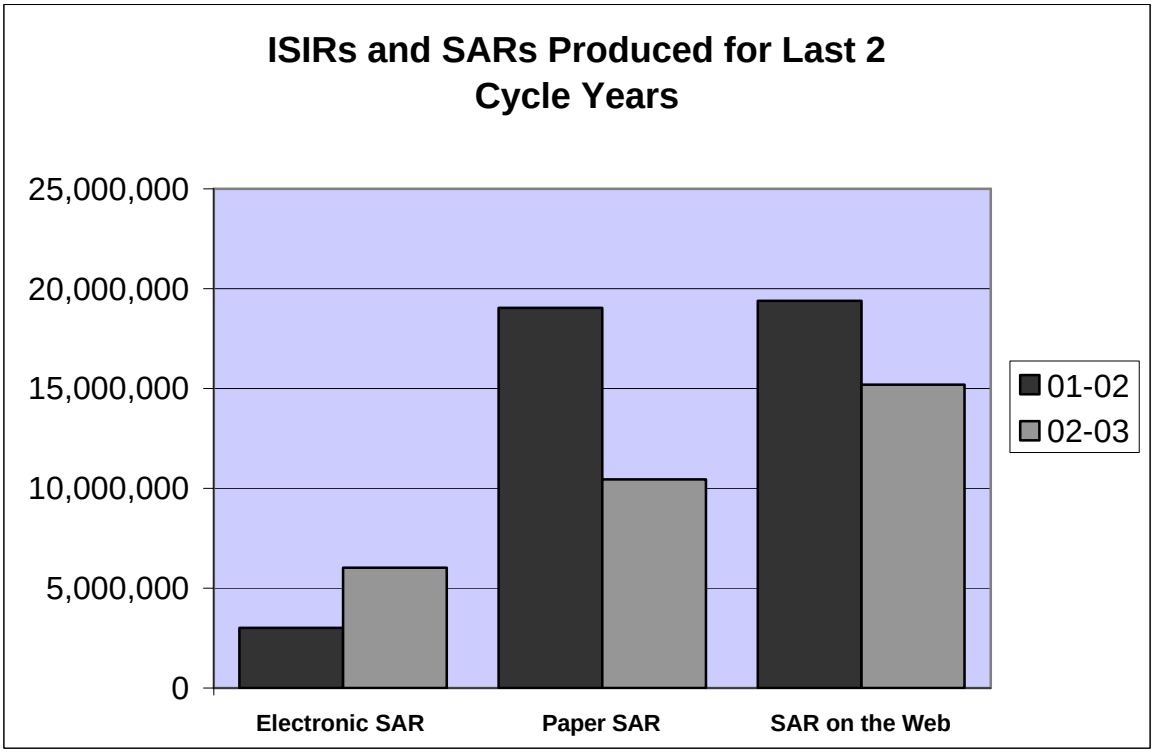


3.2 CPS Statistics and Projections

Statistics	
Number of FAFSA images stored online 00-01	10,078,783
Number of FAFSA images stored online 01-02	9,813,097
Number of FAFSA images stored online 02-03	8,175,937
Number of requests made to retrieve stored images	14,501
Number of ISIRs returned due to bad address	181,785
Number of SARs returned due to bad address	115,893
Number of OPE ID's in PEPS not matching Federal School Codes in CPS	Inactive – 670 Active - 10




FAFSA's Filed the Last 3 Years
FOTW vs Paper vs FAFSA Express vs ED Express
9,000,000
8,500,000
8,000,000
7,500,000
7,000,000
6,500,000
6,000,000
5,500,000
5,000,000
4,500,000
4,000,000
3,500,000
3,000,000
2,500,000
2,000,000
1,500,000
1,000,000
500,000
0
00-01
01-02
02-03
FOTW
Paper
FAFSA Express
ED Express


ISIRs and SARs Produced for Last 2 Cycle Years
25,000,000
20,000,000
15,000,000
10,000,000
5,000,000
0
01-02
02-03
Electronic SAR
Paper SAR
SAR on the Web

3.3 Strengths and Limitations

FSA has been successfully supporting its mission to provide a centralized system for processing applications for students seeking federal financial aid for post secondary education from Title IV programs through the Central Processing System (CPS). CPS has, since its inception, been continuously updated to meet federal regulations and related customer requirements. The CPS has evolved to be the core application business logic that supports the application processing requirements for Title IV aid.

The CPS is at the core of the application processing function and contains all of the necessary regulatory computation requirements for eligibility determination. The image and data capture system provides high-speed optical character recognition to capture applicant data received on paper FAFSA forms as well as associated data entry. The FAFSA on the Web system provides browser-based paperless access to the FAFSA form for data entry. The ED PIN system provides identification and authentication functions for web users of FAFSA-related systems as well as other FSA systems. The EDExpress system provides financial aid administrators at higher education institutions the capabilities necessary for packaging federal student financial aid. As required by law, these systems support the 18-month school year that begins in January and ends in June the following year.

The application processing systems demonstrate their strength through:

- Flexibility to meet annual regulatory requirements as defined by Title IV of the Higher Education Act of 1965, as amended, in its ability to reliably provide the EFC
- Scalability of the systems to meet state and school application deadlines that cause significant peaks in volume of applications received during late February / early March and late August
- Technology refresh to meet customer requirements associated with web-based access to the FAFSA based on sound identification and authentication, shared business logic among application processing systems, as well as communications with students and schools
- Continuous process improvements to streamline the application process and increase aid awareness, through partnerships with schools, state agencies, financial partners, associations, and other delivery partners
- Formal communication with delivery partners that include upcoming regulatory or system changes, future plans, customer requirements, and dialogue to improve the delivery of Title IV financial aid to applicants

These strengths are demonstrated in the nearly 12 million applications processed for the 2002-2003 school year; over 70% of which have been processed electronically. Additionally, the applications are processed with an average turnaround time of less than 4 days; less than 1 day for those submitted electronically. Additionally, the processing results are provided in both paper and electronic form to students in the form of a Student Aid Report (SAR) and SAR on the Web, respectively. Schools are provided the Institutional Student Information Record (ISIR) for packaging student financial aid in electronic format via the web. Ongoing improvements that include technological upgrades to the application processing infrastructure

as well as the adoption of industry standards such as XML (extensible markup language) will further improve service to both students as well as partners.

The department is also modernizing its processes and systems in other areas affecting the student aid life cycle that include aid awareness, loan origination, loan disbursement, loan servicing, and customer support. Modernization efforts still underway include the definition of single sign-on (single student identifier being one of the objectives), routing identifier (to service schools and their branches better), customer support (to streamline customer service calls), and consistent data (to enhance the quality of data within FSA systems). Additionally, the continued focus on leveraging technological advances such as portals, middleware, Customer Relationship Management, data administration and security will undoubtedly benefit the application processing functions. All of these modernization efforts are focused on increased enterprise integration among the application systems to provide efficient service to customers throughout their life cycle of interaction with the department.

Ideally, the application processing function should integrate seamlessly with both internal and external interfaces required to service the student and Title IV financial aid delivery partners. However, limitations on application processing for achieving increased efficiencies are both internal as well as external to the enterprise. Certain external limitations involve the inability to process electronic applications in real-time, costs associated with paper storage, imaging costs and hardware configuration at the VDC, and the need for paper processes. Internal limitations include the data base structure necessary for increased validation and optional services, faster processing interface limitations with other internal applications, and capabilities necessary for specific telephony options to promote the availability of federal student aid. In summary, these limitations include:

- External limitations
  - Real-time processing with external agencies
  - Regulatory requirements associated with paper use and storage
  - VDC Configuration / Imaging Costs

- Internal limitations
  - Data base structure for increased validation and optional services
  - Faster processing interface limitations with other internal applications
  - Capabilities necessary for telephony options

4 Innovations

Following several discussions between FSA's Modernization and Operating Partners related to the As-Is business processes of CPS, several specific ideas for upgrade opportunities and innovations were developed. They are grouped into the following categories:

- Functional
- Architectural
- Policy / Regulation Related

4.1 Functional

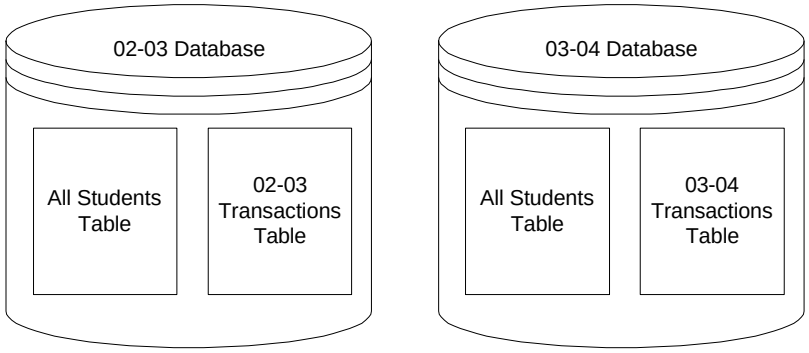
The following innovations will require changes to the existing business processes.

4.1.1 Multi-Year Database

As-Is

The CPS system today maintains a separate database for each cycle year. This is primarily due to the fact that students must re-apply for aid every year, and new data must be collected every year. The data is accessible to customers for the current cycle year, and last year's cycle year after which it is archived. Each database contains a student table and a transaction table, among other tables. No data is shared between databases.

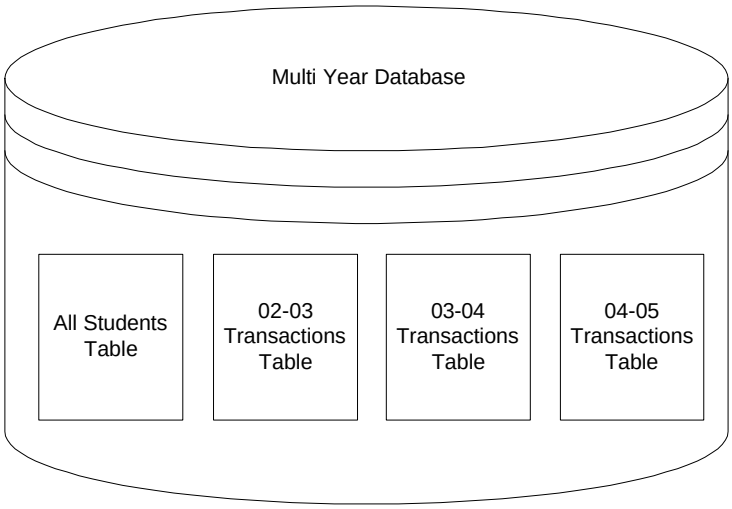
Currently there is no way for the CPS to systematically perform validation against data on a student who has applied for aid in past years.



To-Be

The CPS system will build and maintain a Student table, which will contain the student identifier, match data, and some demographic data. This table will contain all students who apply for aid, regardless of cycle year. Transactions related to students will be kept in the same database for three cycle years (current and prior cycle year). At the beginning of each new cycle year (January 1), transactions from the oldest cycle year will be archived, but the student data will remain in the database.

This database would be used solely for transactional processing such as new transactions and corrections. A separate repository (discussed in Section 4.2.3), which is optimized for analytical processing and queries, will be used for read-only access to this data.



Benefits

- Data from the prior year(s) can be easily compared to the current year to help identify students for audit / verification.
- Schools will be able to focus its audit / verification activities on applications most likely to contain inaccurate information.
- May reduce the number of applications selected for audit / verification but increase the number of applications requiring change based upon audit / verification results.
- Transactions will only need to go through some matches once (SSA, INS, VA).
- Student data will be retained and can be accessed regardless of how many years pass before re-applying.
- Integration with the future Common Customer Care application will be simplified.
- CSRs who only require read-only access to SAR data will use a separate repository for Inquiry, which will help reduce the amount of hits to the transactional database.
- The Student Portal will use a separate repository for read-only access to data.

Dependencies

- An enterprise wide student identifier will be used to create the student table.

Risks

- Depending how the data is stored, there will likely be database changes every year if the FAFSA form changes.

Assumptions

- One of the goals of the Common Customer Care application is to build a “customer” database that will include all FSA customers, including students. The CPS customer

table will be the primary source for the initial load of that data, and the two tables will be kept in synch going forward.

Cost Impact

- Initial costs to implement could be significant.

4.1.2 Telephony Options

As-Is

Currently, applicants have two options for completing FAFSA forms (paper and web).

To-Be

FAFSA by phone will be available for "Auto-Zero" eligible applicants who are filing a renewal. "Auto-Zero" eligible applicants will be sent renewal applications providing the option to file a renewal by phone in addition to the option of filing on the web.

Since "Auto-Zero" filers from one cycle may not be "Auto-Zero" eligible in the next cycle, the IVR will pose a set of upfront questions to determine if the applicant is again eligible for "Auto-Zero" status. If so, the applicant will answer the remaining renewal questions and the application will be submitted from the IVR to the CPS mainframe. If the applicant is not eligible for "Auto-Zero", or is eligible for "Auto-Zero" and chooses to complete a regular renewal, then the applicant will be directed to complete a renewal on the web or the paper version.

Additionally, CPS will provide the capability to integrate with the existing IVR strategy / architecture to provide capabilities to students via the telephone. Students will be allowed to add an institution, change their housing code, modify their drug conviction status, update their address, and potentially make other changes.

Benefits

- Provides a method of filing a renewal for "auto zero" filers and a way to make corrections to an existing FAFSA.
- Processing time is reduced when there is no paper involved.
- Aids balancing of processing workload among different infrastructures, i.e., IVR, Web and mainframe.
- Provides an automated option for applicants who may not have access to a PC.

Dependencies

- Requires 24-hour access to the mainframe.

Risks

- Must ensure the telephone application will be completed in a reasonable amount of time. Based upon advice from the IRS, forms completed over the phone should be limited to one page forms and not take longer than 8-10 minutes to complete.

Assumptions

- Renewals/Corrections by phone will be completed within the recommended time given by the IRS.
- A method of authentication (ED PIN or DRN number) via the telephone will be required in order to allow students to make corrections or file renewals over the phone.
- The IVR infrastructure exists, and enhancements are in scope for other Modernization Partner initiatives.

Cost Impact

- Could involve significant development costs for a limited set of users.

4.1.3 PEPS Integration for School Data

As-Is

Currently, there are two different methods for obtaining schools data in CPS: automated and manual. The automated process is a weekly interface of the PELL Universe file from the RFMS system. The original source of this file is PEPS, however RFMS reduces the file to only PELL eligible schools. Only inserts of new PELL Universe file records are added to the Federal School Code database table in CPS.

If a school is not eligible for PELL, for instance graduate schools, the information is entered into CPS manually. A member of the Department of Education downloads a weekly report from PEPS that lists the newly approved schools to participate in Title IV programs. Any schools that do not already exist in the Federal School Code file (FSC) in CPS are manually entered into the system.

Some schools are entered into the FSC by a manual process. A member of the Department of Education reviews the school data to determine what type of code should be entered into the PEPS crosswalk for the schools, i.e. "G" Code, "E" code. The PEPS crosswalk contains all the identifiers assigned for a school. The "G" codes and "E" codes are also sent to a member of Pearson GS, who enters them into the FSC. Other codes, such as the "0" code, are entered directly into PEPS. Therefore, this code is already on the file when CPS receives it from RFMS.

Beginning with the 03-04-cycle year, CPS will obtain the schools file directly from PEPS via the EAI Bus. RFMS will no longer produce the PELL Universe file for CPS. The PEPS file is much larger than the Universe file RFMS produced, therefore CPS will develop an interface which will only import the required schools information for the Federal School Code file. PEPS will then become the primary source of school data for CPS.

Differences in demographic information for schools exist between CPS and PEPS. CPS sometimes receives requests from schools to update their demographic information. These changes to school data do not filter down to any other systems. Currently, CPS is trying to prevent these differences by not making any changes to the data unless PEPS has also been updated. CPS directs schools to a PEPS website to update their information. This will allow for synchronization of the data between the two systems.

To-Be

PEPS will become the main source of schools data. A one-to-one relationship will be resolved between the Federal School Codes in CPS and the OPE IDs in PEPS. Once these identifiers are resolved, the FSC will be maintained by PEPS. In addition, all school demographic data changes will also occur in PEPS. This will allow for consistency of data between the two systems and other systems, to which PEPS also sends school demographic data.

Benefits

- PEPS will be the main source of schools data
- Consistent demographic and school code information between CPS and PEPS
- Updated school demographic information sent to all systems
- Some manual steps to update data in both systems are eliminated
- Creates a data owner for Schools (PEPS)

Dependencies

- Ability of PEPS to maintain FSC and demographic information in their system

Risks

None

Assumptions

- RFMS and COD will not produce a schools file for CPS for the 03-04-cycle year.

Cost Impact

None

4.1.4 Real-time Matches

As-Is

After a student submits his/her FAFSA application, either via the web or via the paper form, several eligibility cross-checks are performed with external data sources such as Immigration and Naturalization Services, Veterans Administration, Social Security Administration, NSLDS, and Selective Service. This process is done after the data entry edits are performed, but prior to compute. Only those transactions that need to be validated are sent to the required agencies. The rest of the transactions are held until the agency check files are received, then they are matched and sent thru the compute edits process.

Today this process is a daily batch interface and is not performed real-time. If an application does not pass through the matches successfully, the customer is notified after it has been submitted, and corrections must be made separately.

Some matches, such as VA and INS, are actually done via real-time, but the transactions are sent in batch mode. No benefit is gained from these real-time matches since the process is slowed down by other systems, which do not provide real-time interface capabilities.

All applications, regardless of whether they are new applications or renewals, go through the SSA match and the NSLDS match. If certain criteria are met, additional matches are performed.

Integration with the ED PIN Site is also done via a batch process that runs every twelve hours. When a student requests an ED PIN, their identity must be validated with SSA before a PIN can be issued and a batch interface sends the ED PIN via email to the students.

To-Be

NSLDS will provide the data required for eligibility checks in a real-time environment, using the EAI Bus. A real-time interface to NSLDS can be built more easily than to other external systems, given the fact NSLDS is an FSA system already on the Bus. Since all new applications must match to NSLDS, this will be a significant improvement.

Other external matches ideally will be performed real-time. In the event an agency cannot provide dependable real-time access, the interface will be modified so only new students to FSA will be sent to matches for validation. For agencies such as SSA, once a student has been validated, there is no reason to have to re-validate if they re-apply. Some matches such as NSLDS, however, require an eligibility check every year.

Since each of the matching agencies will have different requirements for allowing real-time access, each system will be pursued on an individual basis to explore this option. In order to obtain the greatest benefit, all agencies must participate. The inability for one agency to participate, however, will not prevent the initiative from moving forward. For the agencies that have the capability to provide real-time access, the interfaces will be modified to take advantage of this capability.

The batch window for email will be shortened so students who request an ED PIN will receive it faster.

Benefits

- Students who use the Web to apply for aid will have access to true real-time capabilities and will know immediately if there are problems with their applications, as opposed to potentially receiving a SAR containing comments that will require corrections.
- Students will be able to make any necessary corrections at the time of submitting their application, which may result in fewer calls to FSAIC.
- Real-time SSA match will speed up process of requesting an ED PIN.
- Performance on the system may be positively impacted because the peak times are spread out throughout the day and not batched up.

Dependencies

- Some of the external data sources do not currently provide the capability to interface in a real-time environment.
- A multi-year database, or something similar, will need to be built to capture and store match data for all students.
- All matching agencies must be available 100% of the time or have a contingency plan for high availability.
- SLAs will need to be established with each matching agency.

Risks

- An ED PIN will be required to gain full benefit from real-time web filing because CPS cannot send NSLDS data without a signature.
- Communication downtime with outside agencies may disrupt application processing.
- Students may cause additional transactions by "playing with the data" in order to reduce their EFC.
- Students, who do not successfully pass all real-time matches, will not be able to take advantage of true real-time processing because their applications might need further intervention that cannot take place real-time.

Assumptions

- NSLDS is already on the EAI bus, but may need additional development to accommodate transaction processing.
- The requirements phase will handle the exception and error handling rules for each agency.
- NSLDS will be the appropriate FSA system to obtain information on defaults going forward.

Cost Impact

- It is assumed there will be cost associated to accessing the external agencies via a real-time interface.
- Costs associated with traffic over the SAIG will be reduced, assuming there are fewer transactions.

4.1.5 Web Enhancements

As-Is

One of the options for students to apply for aid includes the FAFSA on the Web application. There are some limitations to using the Web which are due to space restrictions on the paper FAFSA. These limitations on the application include students being able to enter only six schools, and not having the ability to enter a complete address if their address requires two lines or a foreign country.

Students who wish to have ISIRs sent to more than six schools must call to add additional schools and CPS must maintain two or more transactions. It often causes confusion for the student and for FSAIC agents when students call with corrections because they must know which application, or transaction to make the correction for a particular school.

The paper FAFSA does not contain room to add a second address line and/or country field. Students with extended addresses cannot enter in their entire address. This prevents students with foreign or long addresses from receiving their SARS or duplicate SARS in a timely manner. Any request for a duplicate SAR that has a foreign address must go through a manual process to obtain a mailing label. This extends the amount of time before a student will receive his/her SAR.

The transaction table in CPS is designed to enforce these limitations as well, by only allowing six schools per transaction, and by not including fields for additional lines in the student's address.

The Department of Education also provides information to parents and students regarding additional financial aid options. Two examples of these are PLUS loans and HHS loans.

The PLUS form is a loan application for the parent of a dependent student submitted separately to the attending school or the loan origination center. The application requires information that is also requested on the FAFSA. The application can be obtained through a local bank that offers PLUS loans, state guarantee agency, downloaded through the ifap.ed.gov website, or by contacting the institution the child is going to attend.

HHS provides financial aid for specific medical studies such as nursing, which are funded under Title VII. Institutions that participate in Title VII also require the FAFSA since these students are also eligible for Pell grants and Stafford loans. The HHS forms require information that is already requested on the FAFSA, but the forms are completed separately.

To-Be

Enhancements to the web application will be applied to provide more flexibility to students and parents using FOTW. In order to accommodate students who wish to include more than six schools on their applications or enter an entire address, the web applications will be modified to allow additional information. The address fields will be modified on the web to include an additional address line and a field for country. USPS standards for foreign addresses will be applied to the address fields. The student will also be able to add more than six schools on the web. These changes will require modifications to the FOTW application, the PIC screens, and the transaction database. Page 1 of the paper SAR will be modified to incorporate a more universal address format in order to allow foreign addresses to be sorted and mailed similarly to domestic SARS. The paper SAR will not be modified to accommodate additional schools, but the student will be notified that only the first six schools can be printed.

These additional address and school fields have been discussed in past requirements meetings with FSA, but have been deferred.

Additional enhancements to the web include the capability of CPS to pre-populate PLUS and/or HHS loan applications, which are currently outside the scope of CPS processing. Once the Department of Education can provide access to these types of applications online, this capability could be implemented. Students and/or parents will then be required to fill out the remaining required fields while completing the form.

While the web product has been primarily used to submit FAFSA applications over the web, it is increasingly becoming the primary interface for students, parents, schools and other users. In addition to FAFSA submissions, the web product also provides status information to students via Student Access and functionality to school financial aid administrators via FAA Access. Additionally, the web product is increasingly being integrated with the CPS, the ED PIN and other FSA application systems including the COD system. These functions impose an

increasing load on the web infrastructure both during and outside the peak volume application processing timeframes. This infrastructure needs to incorporate best practices for infrastructure performance management for both a structured methodology as well as associated automated tools. The structured methodology will allow FSA to monitor infrastructure characteristics and associated key variables for enhancing user experience on the web. Automated tools associated with the performance management methodology will allow for real time monitoring of the infrastructure and increase FSA's response to peak processing needs.

Benefits

- Greater flexibility for high school students who have not decided which school they will attend, and have applied to more than six schools.
- Less confusion for students, schools, and FSAIC agents when corrections are made to applications that span multiple transactions.
- Schools will always have access to the most recent student data because all schools will be included on the same transaction.
- Special handling for foreign addresses will be reduced to a sort, instead of a manual process. There have been 10,097 foreign address special handles so far in the 02-03 cycle.
- Less returned mail for incomplete addresses.
- Address will become universal and can be used with other systems.
- Parents will not have to complete the entire PLUS form online; fields will be pre-populated with applicable FAFSA information.
- Students will not have to complete the entire HHS form online, fields will be pre-populated with applicable FAFSA information.
- Enhanced user experience from implementing a structured methodology for web application performance monitoring.

Dependencies

- FSA will need to offer eSARs to applicants using FAFSA on the Web and listing more than 6 schools to avoid any impact to the amount of information that can be noted on a paper SAR.
- PLUS and HHS implementing online web applications

Risks

- Schools will receive more ISIRs for students that will not attend their school if the number of schools is increased; there could be backlash from the institutions.
- ED Express may need to add capability to handle more than six schools and an extended address, depending on the re-engineering schedule.
- Precautions will need to be taken to prevent unnecessary corrections for students who request paper SARs which may not contain all the information in the electronic ISIR

Assumptions

- Page 1 of the paper SAR has room to expand the address to include a second line and a country field.
- The student will be notified that if more than six schools were included on the web application, only six can be printed on the SAR.
- HHS will coordinate effort with FSA

- No known plans exist for allowing access to PLUS or HHS forms via the web.

Cost Impact

- New envelopes may be required to accommodate extended addresses
- Savings in manual time spent on typing foreign addresses, returned mail for incomplete addresses
- There is no room to add the expanded address on Page 5 of the paper SAR without redesigning the form.

4.1.6 Automated Address Verification

As-Is

CPS uses FASTFORWARD address correction service to track students who moved and sends mail to the most current addresses. This service is not applicable to ED PIN mailers. ED PIN mailers that cannot be delivered due to an incorrect address are returned to Pearson GS for shredding.

CPS currently does not provide address validation for FOTW, PIC or the ED PIN site. If an address is entered incorrectly and an e-mail address is not provided, it will result in the student not receiving his or her printed SAR in the mail.

The IDC has an address formatting routine that converts address elements (i.e., street, Avenue) to USPS standards.

To-Be

CPS will continue to use the existing FASTFORWARD application going forward. In order to accommodate students while completing aid applications and ED PIN application, CPS will implement address validation software for FOTW and the ED PIN site. This software will clean and standardize address information for increased deliverability and address accuracy. For example, a student will have the ability to enter a zip code, which will allow city and state to be automatically populated. The auto-populated fields will be displayed to the student and can be edited on the web site. If a student uses the web to enter an address that does not exist in the USPS address master file, the student will be prompted to check the validity of the address. The students can override the error message and continue to save what has been entered or correct the errors on the web site.

Benefits

- Provides a method to improve address quality for FOTW and the ED PIN site by automatically filling in some of the fields.
- Students will need fewer keystrokes to complete the application.
- Future potential of leveraging correct address information among criteria for authentication.

Technical Implementation feasibility:

- Offers online and batch interfaces
- Easily integrated into web or mainframe applications

Dependencies

- None

Risks

- The additional lookup to the address database will impact web application performance. Additional research has to be done to evaluate the impact.

Assumptions

- Less mail will be returned due to the improved quality of the address data.
- Fewer students will call FSAIC to correct their addresses.
- CPS will keep standard addresses based on USPS mail codes.
- CPS will continue to get updates from USPS to keep an up-to-date US address master file.
- A monthly routine will need to be established to refresh the address master file and other package related maintenance tasks.
- The software solution can be customized to allow applicants enter zip code and automatically populate city and state. It can also be customized to allow applicants enter city and state, which automatically populates zip code. A design decision has to be made as to how CPS will customize the software.
- Group1, Acxiom and USPS are among many of the vendors that provide address validation software.

Cost Impact

- Address validation software licenses will need to be purchased.
- Monthly system administrative routines will be set up to support the software.
- Some cost will be required to customize the COTS package since most of the software vendors offer the features needed by CPS.

4.1.7 Paper FAFSA Storage

As-Is

Financial Aid related applications and documents (FAFSAs, Renewals, Corrections, SARs, signature pages, letters requesting corrections / additions, and other substantiating documents) are sent to one of two MDE contractor sites in Mt Vernon, Illinois or Lawrence, Kansas. The MDE sites receive and scan the forms, and then send the data and images electronically to CPS where the data is processed and the image is retained in TIFF format on the ImagePlus system. The paper documents are retained at the MDE sites until the end of the cycle for which they were submitted (i.e., December 2003 for the 2002 / 2003 cycle). At the end of the cycle, the paper records are shipped to the National Archives Center.

Current policy requires that the paper forms be kept on file for 7 years. For the 01 / 02 cycle, the MDE sites have 6,029 boxes of forms. For the 02 / 03 cycle (as of September 30, 2002), the MDE sites have 4,840 boxes of forms. Since the 96-97 cycle, the MDE sites have sent 26,610 boxes of documents to the National Archive Facility.

To-Be

Beginning with the 03-04 cycle, CPS will not process any record unless the image accompanies the data file, thus guaranteeing that a match between paper forms and images. In order to save costs in storing old paper forms, all forms older than 7 years should be destroyed. In addition, all paper FAFSAs (for the 03/04 cycle) received after 12/31/2002 should also be destroyed once the image is successfully received and acknowledged by CPS.

Benefits

- Reduction in archive costs to FSA.

- Dependencies
- Hardware, software, and processes must meet requirements for image storage.

Risks

- None

Assumptions

- Images are acceptable alternatives to paper for court cases and other related investigations.
- Archive facility maintains dates or original application dates so records older than 7 years can be clearly identified.
- FSA will establish a policy related to the length of time required to keep paper records available

Cost Impact

- Cost savings can be expected annually based on current archiving rates and the number of forms older than 7 years that can be destroyed.

4.2 Architectural

The following innovations will require significant changes to the existing CPS technical architecture

4.2.1 Imaging – Storage and Retrieval

As-Is

The MDE sites receive, scan and enter source documents into the IDC system. The data and corresponding image are sent as one unit to the CPS, where the image is stored and the data is edited. If there are Data Entry errors detected, the IDC site is notified and documented edit procedures are performed to correct the data. The corrected data is then sent to the CPS for edit and storage. If the image was annotated, the new image is sent with the data, and it replaces the old image stored for that document.

The images are created and stored as Tagged Image File Format (TIFF) images. The software product on the mainframe is ImagePlus V3.1 from IBM. The images are stored initially to DASD, and then migrated to optical platters during an offline maintenance cycle.

The images are retrieved via CICS transactions, using an ImagePlus interface. In order to display an image, the workstation must be running a TN3270 emulator and IBM's ImagePlus Workstation Program (IWPM). There is also required setup in the network and ImagePlus tables. The current user base is on IWPM / NT V2.2 and IWPM / 2000 V2.2.

To-Be
Images over 3 years old will be catalogued and the associated platters stored off-line. Going forward IBM will no longer enhance the ImagePlus application. CPS will need to design a transition strategy if IBM stops the support of the application. The transition strategy will need to take the following factors into consideration:

- Current Users
  - The current users of image retrieval are at FSA and on the FSAIC contract.

- Browser Based retrieval
  - The IWPM requirement for image retrieval could be replaced with a browser-based lookup method. The new software application could provide the capability to extract these images and present them with a web-based (intranet) solution. This will need to be integrated with the method of data inquiry used by FSA and FSAIC, which is currently Inquiry on CICS.

The current image storage is set up to keep all images online indefinitely. This requires the purchase of additional hardware every time a controller fills up, rather than simply taking the optical platters offline and mounting them when necessary. Potential cost savings can be achieved if the requirement to keep images online indefinitely can be modified.

Benefits
- Substantial operating cost savings can be reached if images can be stored offline rather than online.

Dependencies
- None

Risks
- None

Assumptions
- None

Cost Impact
- Savings can be achieved by cataloging images off-line.

4.2.2 Platform / Platform Supplement

Assessment of currently available options
CPS operates on a 9672 mainframe and the Z / OS (ver 1.2) operating system.

IBM has recently introduced a z800 series server with a two-CPU engine that has the flexibility to run a traditional M/F environment. IBM has also introduced z/OS.e, a stripped-down version of the z/OS operating system. The z/OS.e can be run on the z800 series and is aimed at web-hosting applications on mainframes. The price of z/OS.e and DB2 for z/OS.e is significantly below the price of z/OS software. However, z/OS.e will not support traditional mainframe transaction processing workloads (such as CICS and IMS). In addition, z/OS.e also doesn't directly support applications written in COBOL, PL/I and Fortran. The z/OS.e applications can be developed to interoperate with these applications.

Because of these restrictions, converting CPS to z800 and z/OS.e will require a substantial migration effort. It is recommended that CPS continue to operate within its current technical architecture. After the new z-series mainframes and operating systems have been extensively implemented and upgraded by IBM, CPS will re-evaluate and decide whether to migrate to the new platforms.

4.2.3 ISIR Repository

As-Is

Currently, CPS generates ISIRs on the mainframe and replicates copies for each school listed on the FAFSA and the appropriate state agency destination points. CPS transfers the replicated copies to SAIG mailboxes. Up to 20 replicated ISIR copies can be sent to the destination points.

To-Be

CPS will build interfaces to migrate ISIR data from the multi-year database (transaction based system) to an ISIR data repository. A web interface will be built to allow schools and states to access the ISIRs online. Schools and states will be able to view and download ISIRs from the web. It is expected that a transition period will need to be in place as some schools will want to use the web interface and some schools will want to continue receiving the ISIRs via SAIG. CPS will pilot the new web interface with selected schools and state agencies and set a schedule for the remaining schools to transition to the new web interface.

This repository will be used solely for read-only access to ISIR data and no updates will be made to this data. Updates will occur only on the Multi-Year Database (discussed in Section 4.1.1), where the data is optimized for transactional processing.

This ISIR Repository will also be used for some analytical reporting and ad hoc queries as well.

Benefits:

- Increased operational efficiency by providing ISIRs on the web instead of using SAIG as a mail distribution function.
- Less mainframe processing activity since the FDR, YTD and some of the COMBINE functions are reduced. Since schools and state agencies will log on to the ISIR repository, CPS mainframe will only need to produce one ISIR for Schools and state agencies instead of replicating ISIRs for the destination points.

- Reduces network traffic between CPS mainframe and SAIG since schools and state agencies will use the repository to retrieve ISIRs.
- The ISIR repository can provide analytical tools and reports to schools and state agencies.
- Allows schools and state agencies access to historical data in the repository.
- Schools and state agencies can retrieve the ISIRs in XML or flat file format.
- CSRs who only require read-only access to SAR data will use this repository for Inquiry, which will help reduce the amount of hits to the transactional database.
- The Student Portal will use this repository for read-only access to data.

Dependencies

- A secure user interface will be built to allow schools and state to view the ISIR via the data repository.

Risks

- Some schools may be resistant to new process of obtaining ISIRs.
- Since the schools and state agencies have easy access to the repository, CPS has to plan enough network capacity to allow high volume of ISIR extraction at any given time.

Assumptions

- Redundant data will be stored on the mainframe for processing and in the ISIR repository for querying and retrieval.
- Some schools and state agencies may have developed custom applications to interface with SAIG. If a new ISIR repository is developed, these applications will have to be re-developed to interface to the new repository.
- Although network traffic may be reduced on SAIG, the mailbox function will have to be kept in production if some schools choose to use SAIG instead of the repository. In addition, the new ISIR repository will need to be designed to handle the full volume.
- Schools and States will be trained to learn the new processes and the existing SAIG distribution function will remain until the transition can be completed.
- Since the ISIRs will reside in a repository, schools and states no longer need to submit FDR or YTD request for the ISIRs.

Cost Impact

- There will be cost incurred to build the data repository, maintain servers and network bandwidth to support ISIR view and download within the repository.
- If the ISIRs are placed in the web repository, traffic on SAIG may be reduced and this can result in some cost savings relating to SAIG operations and hardware upgrades.

4.2.4 Mainframe Load Balancing

As-Is

- CPS currently resides on an IBM 9672 mainframe. The mainframe has 2 CPUs and runs on the z/OS operating system.

To-Be

Base SYSPlex

CPS can implement a base SYSPlex solution from IBM to provide a more robust environment for operating system upgrade, application development and testing. Currently, CPS has a small portion of the logical partition on the mainframe assigned to conduct testing. Since this is not a mirrored production environment, a major operating system upgrade can incur frequent production down time as well as unpredictable upgrade errors.

By installing a base SYSPlex and dividing the mainframe into logical partitions for production, testing and development, CPS can keep all these operations running without interference. Using a production-mirrored test LPAR, CPS can test the operating system upgrade thoroughly and independent of the production system. The production system will be upgraded only when the test region has been upgraded successfully. Applications can be developed and tested in different regions so each task can be run without interrupting each other.

Parallel SYSPlex

CPS can improve its ability to handle mainframe transaction volume by implementing the SYSPlex solution from IBM. The SYSPlex solution will provide a scalable and flexible growth path for the CPS CICS/DB2 application.

For example, the CPS mainframe and other ED mainframes can be coupled and function as one machine. During the CPS peak period, traffic can be directed to all the available mainframes in the environment to balance the workload. During non-peak period, the CPS mainframe can handle traffic from other systems as needed. In addition, new processors and capacity can be added to the SYSPlex environment in a non-disruptive manner. There is very little downtime to install, configure and test the new hardware or applications.

Benefits

- 7X24 availability and added fault protection
  - SYSPlex enables CPS to continue operation in case of hardware failure. Since multiple mainframes can be linked in the SYSPlex environment, if one mainframe stops functioning, operations can be routed to other mainframes within the SYSPlex environment.
- Scalability
  - Increased capability to process applications during peak period
  - Balanced workload across multiple processors to alleviate a performance bottleneck.
  - Efficient sharing of computing resources if other mainframes within FSA can be integrated into the SYSPlex environment. The SYSPlex solution provides a central point of control to maintain and fine-tune the processors and disk space available within the environment.

- Enables data sharing among FSA systems
  - Since other FSA mainframe systems can be added to the SYSPlex environment, CPS can directly access data from these systems instead of conducting file transfers through other means.

Dependencies

- The implementation of SYSPlex requires additional available mainframes
- CPS production peak cycle occurs during spring and fall. Other mainframes to be coupled in the SYSPlex environment will need to have a different peak cycle.
- Mainframe administrative procedures will need to be set up to monitor SYSPlex

Risks

- Installing and maintaining a SYSPlex environment requires specialized hardware and software skill sets. CSC will need to acquire the necessary personnel to install and maintain the environment.

Assumptions

- CSC will be responsible for administering the new SYSPlex environment
- Some of the CPS applications and configurations may have to be changed to run in the new environment

Cost Impact

- Installing SYSPlex requires specialized skills and a typical installation usually takes several months to complete. There is additional equipment and software that will need to be purchased.
- Overall FSA mainframe capacity needs can be reduced if multiple mainframes can be configured in a SYSPlex environment.

4.2.5 Re-Structure Transactional Database

As-Is

The design of the CPS database today allows multiple transactions to be created for a given applicant. This allows changes to be made on any transaction, as opposed to the most recent transaction. From the School's perspective, this provides some flexibility around which transaction to award aid if several transactions exist.

Due to the fact corrections to a FAFSA / SAR can come from multiple sources (PIC, Web, School), a history of transactions is required. It can be confusing to students and to PIC operators when multiple changes are made to transactions other than the most recent.

To-Be

At this stage, re-structuring the transactional database such that all updates are made to a single transaction is not recommended due to the need for flexibility by school users. However, additional analysis will be required in the future to consider this re-design to store data in a more cumulative manner so all corrections will be made to the last, or most recent transaction.

With this upgrade, corrections will not be made based on past transactions but will remain in the database for reference purposes and for the purpose of an audit trail.

Benefits

- This will help eliminate PIC operators having to toggle through multiple transactions to find the one on which to make the correction.
- Process will be simplified if all corrections are only made on the last transaction.

Dependencies

- Requires approval from Schools, since this impacts their process of awarding aid on any transaction.
- If an application has more than six schools, they must all be included on the same transaction.

Risks

- The process of schools making corrections on behalf of a student that applies only to that school (assumption overrides) is impacted. All other schools on that transaction will receive the override information and will likely have to make their own corrections.
- There are potential policy impacts on the following:
    - Verification process: Once a school verifies a student's data, another school should not update it.
    - Financial Aid Administrator's (FAA) ability to apply professional judgment on a student's application.
    - FAA's ability to override assumptions regarding a student's dependency status.
    - Dissemination of a student's information to schools other than the one issuing a correction.
- Corrections issued by two or more parties (e.g. FAA and student) without knowledge of each other's actions may be conflicting.

Assumptions

None

Cost Impact

- There will be cost associated with re-designing and re-building the database in this format, as well as modifying applications that are allowed to access the past transactions.
- There will be a cost impact to other FSA systems.

4.2.6 Phase in use of EAI Bus

As-Is

Currently, CPS uses the bus for data transfers with COD and NSLDS.
CPS transfers the abbreviated applicant file to COD. CPS also sends matching data, demographic data and student updates to NSLDS, while NSLDS sends the pre-screening and post-screening data back to CPS. In addition, NSLDS sends CPS a list of schools and the students that received awards from the schools.

Beginning with the 03-04 cycle year, CPS will use the EAI Bus to retrieve the schools file from PEPS.

To-Be
CPS will use the EAI Bus to fulfill student data requests from the Common Customer Care application.

CPS will use EAI BUS to perform real-time matches with NSLDS.

Benefits
- Standard interface to enterprise data
- Fast transferring mechanism via EAI Bus architecture

Dependencies
- EAI team has the resources to support CPS volume requirement
- Capacity planning
- Common Customer Care application requirement

Risks
- Using the EAI BUS may incur additional points of failures for data transfer. Currently, CPS uses point-to-point connection for some of the system interfaces. By utilizing the EAI BUS, CPS will need to transfer data to the EAI connection and rely on the BUS to transfer the data to the destination point. Since other FSA systems uses EAI BUS for data transfer, those systems can cause temporary traffic bottleneck or outage and affect CPS operations.

Assumptions
- Interfaces to the EAI Bus will be developed in coordination with the EAI team
- Performance tests will be conducted to ensure the EAI architecture can handle the high volume requirements from CPS
- The EAI team will have resources for timely responses to EAI problems and resolutions
- The EAI infrastructure will include backup and recovery mechanisms in case of software and hardware failure

Cost Impact
- Interfaces to the EAI BUS will be built to replace the existing interfaces.

4.2.7 Security

As-Is
FSA's application processing systems operate in multiple locations. CPS, FAFSA on the Web and the ED PIN applications are housed and operated at the virtual data center (VDC). The image and data capture (IDC) system[2] operates at locations in Lawrence, Kansas and Mt Vernon, Illinois. The development and testing activities associated with these applications are

[2] The IDC is also known as the multiple data entry (MDE) system.

performed at the operating facility. The EDExpress software suite is provided to schools for installation on their own computers. The EDExpress software suite is developed at Pearson GS facilities. The CPS security plan documentation addresses security requirements for the CPS, FAFSA on the Web, ED PIN, IDC and EDExpress software. Other security considerations related to the infrastructure are documented within the VDC plans.

To-Be

The CPS Security Plan will be upgraded for responsibilities, coordination processes, and documentation associated with OMB guidelines. The responsibilities associated with implementing security policies will be clearly identified, documented and understood by participating organizations. Appropriate coordination guidelines will be established and implemented among the application software and hardware system organizations. The documentation will identify the different software supporting FSA's application processing as well as the distributed locations of the facilities utilized in the development and operation of the systems. The systems include:

- Central processing system
- Image and data capture
- FAFSA on the Web
- ED PIN
- EDExpress

All of the above five application processing software systems are critical to the eligibility determination objectives.

Benefits

- Clear identification of responsibilities will strengthen FSA's compliance with security policy and guidelines and enable FSA to continue operations in case of a disaster as well as proactively prevent unauthorized access.

Dependencies

- Current publication and issuance of the Department security policies and guidelines.

Risks

- Security vulnerabilities can lead to extended periods of system outage that prevent normal business operations or privacy data theft.

Assumptions

- The department has adopted the NIST 800-18 standards for security planning of FSA systems.

Cost Impact

- Some costs may be incurred to institutionalize security operations among the participating organizations.

4.2.8 Automated Scheduler

As-Is

All CPS jobs are submitted manually using SMD (Systems Managed Data), a proprietary product from Pearson GS. Production Control manually submits and checks the jobs for successful completion and verifies the "balance and control". Production Control occasionally receives errors on jobs due to submitting wrong parameters, jobs being submitted out of order, rerunning the same job multiple times, or running a job that should not have been run. This causes CPS Development to have to restore files and databases and then rerun jobs. Production Control also must put together and maintain schedules on a daily, weekly, monthly, and quarterly basis.

To-Be

An automated scheduler will be implemented and used going forward for all CPS jobs. Input files will be used as opposed to parameters, and new programs will be developed to handle the manual "balance and control" done today. Existing job cards and return code checking in the JCL will be modified to conform to the automated scheduler.

Benefits

- Most jobs will be submitted automatically
- Less Production Control intervention.
- No Production Control manual checking of "balance and control".
- Less Production Control errors

Dependencies

- Production Control must setup input parms on a daily basis for the automated scheduler to run correctly.
- CPS Development must setup all testing to be done using the automated scheduler during Development timeframe.

Risks

- A possibility exists that the jobs will continue to submit themselves automatically until the job is manually stopped. There could be extensive correction action needed for the files and databases.
- All balance and control have been setup properly.
- Automatic scheduler's flexibility to handle different schedules on a nightly basis.
- Restart capabilities, set up of schedule, and ability to back out real-time records.

Assumptions

- All CPS Development members will be formally trained in the automated scheduler.
- Pearson GS can work the 2004-05 implementation of the automated scheduler into the existing development cycle.
- Converting 03-04 data will be discussed during requirements phase.

Cost Impact

- The Initial costs to implement the automated scheduler could be significant.

4.3 Policy/Regulation Related

The following innovations will require administrative or legislative policy change to implement.

4.3.1 IRS Data Match

As-Is

Currently no data match is conducted with the IRS. In the process of verifying the information supplied on the FAFSA form, schools may request that students provide copies of W2 forms and tax return documents but do not verify any of the information with the IRS.

To-Be

A data match with the IRS will not occur until legislative is signed that mandates the IRS to supply income related information to FSA. Once that legislative change occurs, an entire set of business processes will be established to determine what data is passed between FSA and the IRS, and how and when the data is transmitted. The following scenarios describe potential matching options between the IRS and FSA.

As part of the existing matching process within CPS, CPS will send demographic information and tax related information supplied on the FAFSA form to the IRS. The IRS will verify the tax related information and send the results back to CPS. Discrepancies between the data supplied on the original FAFSA and the IRS information will be noted on the SAR. Two alternatives exist for the IRS data match (Prior / Prior year match or Post-award match).

Since the FAFSA process begins in January of each year and tax forms are not due until April, IRS data will not be available for all FAFSA filers. In fact, in conversations with the IRS, income information will not be available to release until August of each year. In the case of a prior / prior year match, the FAFSA form will ask for income information two years prior to the FAFSA (e.g. 2003 FAFSA asks for 2001 income information). In the case of the post-award match, the applicant will be asked to supply income information for the previous year (as is currently the case) and the EFC will be calculated based on that unverified information. In the late summer / early fall, the IRS will supply income matching information and discrepancies will be passed on to schools who will be responsible for making adjustments to award packages.

In the Higher Education Reauthorization Act, an IRS match is mandated. FSA is currently exploring ways to implement the match. The match will likely not occur until similar legislation is passed affecting the IRS.

Benefits

- Reduce Pell over-awards - an objective of the President's management plan and a goal of FSA.
- Relieve the burden on the schools of having to verify tax return / W2 information (schools are currently required to verify 30% of their applicants data but some do 100% verification).
- Ensure tax related information supplied on the FAFSA form is accurate.

Technical Implementation Feasibility

- CPS currently interfaces with other outside agencies (SSA, SS, INS, VA, NSLDS) – and adding an interface with the IRS will involve a similar process that occurred for each of the other interfaces (defining the data sets, timing of transmissions, establishment of communication lines, etc).
- IRS has indicated that actual income data cannot be supplied to third parties such as schools. FSA (CPS) could inform schools that a discrepancy exists but cannot provide actual data.

Dependencies

- Legislative passed requiring IRS to supply the requested information.
- IRS is technically capable of providing the information in a timely manner.

Risks

- FSA will have little control over the ability of the IRS to receive data from CPS and to return verification data in a timely manner.
- The ability to meet current goals of a seven-day turnaround for FAFSA applications could be impacted if the IRS could not meet the performance goals for the matching process.

Assumptions

- Legislative change requiring IRS to supply the data is passed.
- Using Prior / Prior method will require a legislative change to FSA.
- All details related to the timing of IRS data will be discussed in the requirements phase.

Cost Impact

- Upfront costs in establishing the connection with IRS and performing an intersystem test.
- Increase in yearly development, operations cost associated with the additional interface.

4.3.2 Multi-Year FAFSA

As-Is

Current policy requires financial aid applicants to complete a FAFSA form for each academic year.

To-Be

Given that the FAFSA form and the resulting EFC calculations are dependent on tax return information that is required to be filed annually, and financial information that changes yearly, it is not recommended to move to a multi-year FAFSA process. For discussion purposes, a multi-year FAFSA process would consist of the following:

FAFSA forms will be completed once for an educational program (2 year, 4 year, 5 year program). Some additional data will be captured / verified in subsequent years to ensure that the applicant's / family's income information had not changed significantly. If so, some adjustment to the EFC will be made for subsequent years.

Benefits

- Applicants are not burdened with providing detailed financial information each year they attend school. A family's financial situation normally does not change significantly from year to year so removing the additional burden of filling out a renewal FAFSA form each year will reduce the paperwork burden on applicants.
- Significantly reduces the number of paper and web applications processed each year, which will result in CPS/IDC operational savings to FSA.

Dependencies

- Potentially linked to IRS data match. Will enable CPS to verify subsequent years' income information without asking for additional information from the student.

Risks

- Key demographic/contact/financial data may be out of date if applicants do not providing this information every year.
- Yearly legislative changes may significantly impact the EFC calculation that was calculated for the entire program.
- Key demographic/contact data may be out of date if applicants do not provide this information every year.
- Financial data will not be up to date.
- Potential impact on States and other agencies that use FAFSA data.
- May create issues for transfer student award process.

Assumptions

- Requires a legislative change.
- Schools will pay on the EFC calculated the first year.

Cost Impact

- Lower systems operational cost for FSA
- Potentially higher cost to schools depending on subsequent verification required.

4.3.3 Require ED PIN for Web Applications

As-Is

Students and parents who apply for aid using the FOTW application are not required to register for an ED PIN to complete the application process. Instead of using an ED PIN to electronically sign their application, they have the option to print out the signature page, sign it, and mail it in. Schools can also submit signature pages electronically on behalf of the student.
Many applications today are held up in processing while they await the receipt of the paper signature page. Additionally, there are costs involved with imaging and storing the paper forms.

To-Be

The existing policy states that students are not required to have an ED PIN in order to apply for aid on the Web. If this policy is modified to require FOTW customers to have an ED PIN, the paper signature page will not be required and all students will sign their application

electronically. In order to completely eliminate the paper signature page, parents of dependent students will also be required to use an ED PIN to sign the FAFSA.

Benefits

- There will not be any need for any paper processing for Web applications, except possibly for parents of dependent students.
- There will be fewer applications held waiting for signatures.

Dependencies

- Requires a change to the FSA policy regarding ED PIN.

Risks

- If an ED PIN is required in order to sign a FOTW application, it could be perceived that the system is discriminating against
  - Students and parents who may have access to the Internet but do not feel secure using an ED PIN to file an application.
  - Foreign students (due to the fact that a Social Security Number is required in order to have an ED PIN issued).
- Students who do not have e-mail might not want to wait for an ED PIN to be mailed to them.
- Parents of dependent students will also require an ED PIN.
- Some students and parents might choose to return to paper FAFSA forms, as opposed to using their ED PIN, resulting in an increased number of paper filers.

Assumptions

- Students without access to the Internet still have the option to file via a paper application.
- ED PIN must be enabled 100% of the time.
- The related policy states that for all electronic applications, a paper application must be available.
- FSA provides both an electronic and paper FAFSA application, but provides a means for students to bypass receiving an ED PIN.

Cost Impact

- The costs of imaging and storing the paper signature page will be eliminated.

5 High Level (Sequencing) Plan

The sequencing plan below displays the recommendations of the CPS enhancements and the possible implementation schedule. Each innovation was analyzed in terms of benefits to CPS and possible impact to other CPS functions. The complexity and feasibility of the implementation was also reviewed along with the CPS schedule and cycle year. The following implementation schedule is a result of this analysis.

CPS Enhancement Implementation Timeline

The CPS upgrade initiative is a 3-phased plan. A message is that CPS is an integrated application processing (IAP) family of systems - it includes FAFSA on the Web, IDC, ED PIN and the CPS-related functions within EDExpress.

The **first phase is to upgrade the application architecture**. This phase is focused on FY03 with implementation in January 2004 and involves the following:

- Design a multi-year database
- Initiate planning and requirements for the ISIR repository
- Implement OLAP capability for CPS
- Initiate review and expansion of payment error processes
- Implement a structure web application performance monitoring methodology and associated automated tools
- Develop telephony options for requesting a duplicate ED PIN or to change the ED PIN
- Enhance the speed with which an e-mail notification is sent from the ED PIN site to real-time - for new, duplicate or changed ED PINs
- Re-architect the ED PIN functionality to an enterprise level and publish architectural standards for using the ED PIN and interfacing with it
- Remove redundant business code among the application processing systems
- Archive images that are more than 2 years old
- Increase the use of EAI among the application processing systems.

The **second phase is to implement integrated services**. This phase is for FY04 with implementation in January 2005 and would involve the following:

- Implement the multi-year database
- Implement FAFSA corrections functionality using telephony
- Integrate with PEPS for all schools data and remove that functionality from CPS
- Implement web functionality for FAFSA on the Web to accept more than 6 schools
- Implement a universal address format and web-based address verification
- Implement the ED PIN as an enterprise authentication service for students (& others as appropriate)
- Enhance security across all the systems
- Implement an automated scheduler for mainframe jobs.

The **third phase is to enhance customer service**. This phase is for FY05 with implementation in January 2006 and may include the following:

- Implement auto-zero FAFSA renewals via telephony
- Implement FAFSA renewals via telephony
- Implement real-time matching with NSLDS
- Implement standard interface to E-Gov E-Loans initiative for student loans
- Deploy predictive modeling processes
- Implement ISIR distribution capability via repository with format options

The Higher Education bill pending legislative approval may require other changes such as matching with IRS (a business process that does not exist and will need to be developed from scratch).